

Aspects of Modern Treasury Management

– Organization and external financial activities in Swedish MNCs



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Jakob Fugger, 'the Rich' (1459–1525), was one of the first industrialists
to combine manufacturing with financial intermediation and financial
service. He belonged to the 'von der Lilie' line of the family.

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Aspects of Modern Treasury Management

– Organization and external financial
activities in Swedish MNCs

Karl Åhlander

To Gudrun



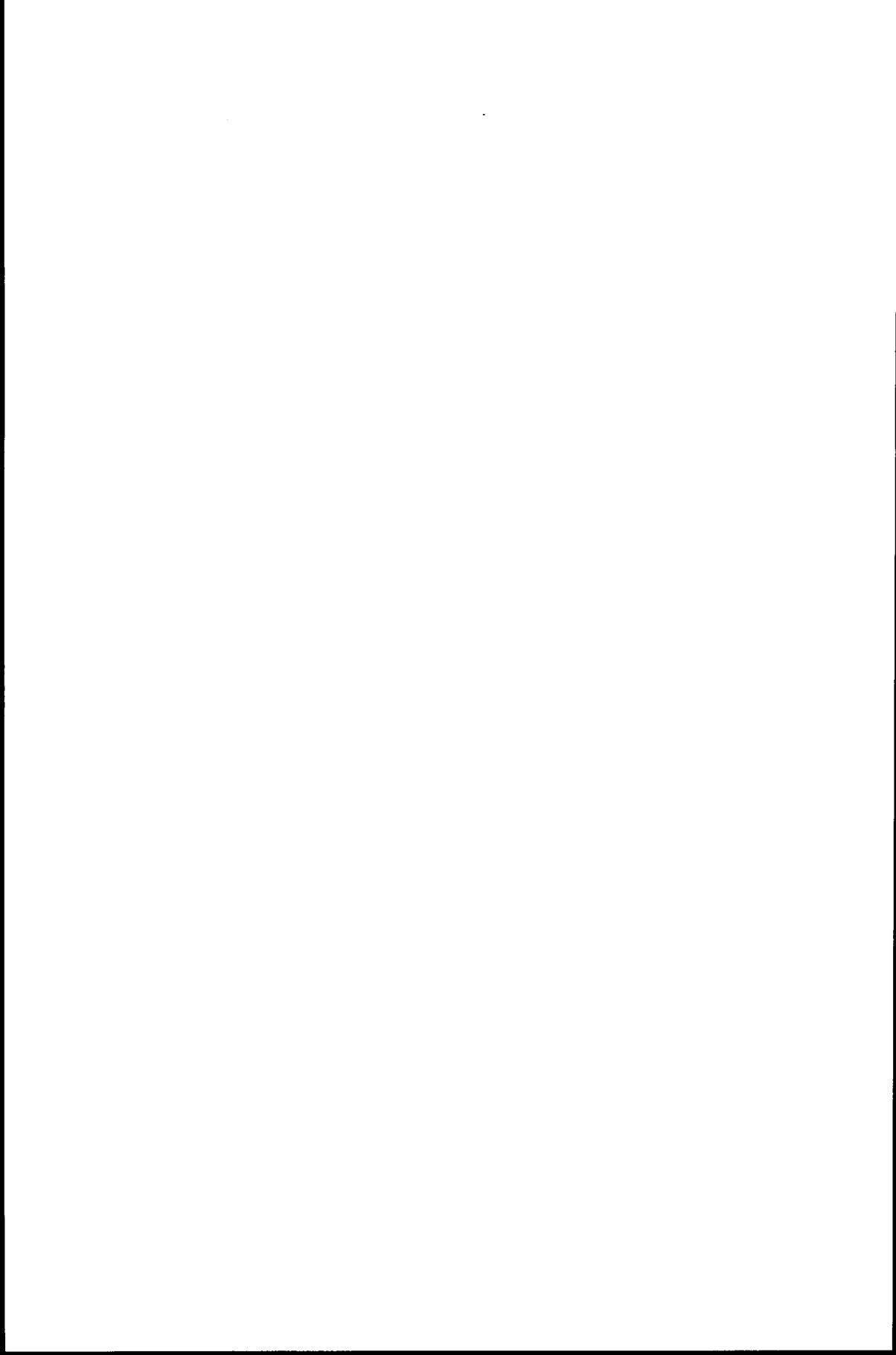
Preface

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Stockholm in July 1990

Jan-Erik Vahlne
Director
Institute of International Business



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This dissertation is dedicated to my wife, in recognition of her patience and unfailing support.

Stockholm in July 1990

Karl Ahlander

Contents

Preface	i
Acknowledgements	iii
Contents	v
List of Figures	xi
List of Tables	xiii
Chapter 1 The New Options of Today's Treasurer	1
1.1 Introduction	1
1.2 The Changing Operational and Financial Environment	3
1.2.1 The internationalization of Swedish firms	3
1.2.2 Securitization and disintermediation	4
1.2.3 The treasurer's new situation	9
1.3 Previous Research	11
1.3.1 U.S.-studies	12
1.3.2 Swedish studies	14
1.3.3 Comparing apples and oranges?	17
1.3.4 Rationale for the study	18
1.4 Research Questions	20
1.5 Delimitations	21
1.5.1 A bank is a bank is a bank?	22
1.5.2 'Over'-liquidity	23
1.5.3 Internal or external control over a business	24
1.5.4 Swedish scope of the study	25
1.6 Structure of the Dissertation	25
1.6.1 The process	25
1.6.2 Road map	27
Chapter 2 The Theoretical Background	29
2.1 Introduction	29
2.2 The Theoretical Limbo	30
2.2.1 The neo-classical theory of the firm with mild imperfections	34
2.2.2 Neo-classics with psychological	

limitations	36
2.2.3 Real-financial linkages	37
2.3 The choice of approach	41
2.4 The spectrum of financial activities	44
2.4.1 Financial intermediation: how flows are arranged	45
2.4.2 The spectrum	47
2.5 The theory of financial intermediation	49
2.5.1 Asset service	51
2.5.2 Liability services	58
2.5.3 The two-sided nature of financial intermediation	59
2.5.4 Summary of literature review	65
2.6 Summary and concluding remarks	67
 Chapter 3 Manufacturing and Retail Linked Financial Intermediation in the United States	 71
3.1 Introduction	71
3.2 The regulatory framework	72
3.2.1 Regulatory powers	73
3.2.2 Restrictions on the product scope offered	73
3.2.3 Price restrictions	74
3.2.4 Restrictions on geographical scope	75
3.2.5 Summary	76
3.3 M&R-Linked Financial Intermediaries in the U.S.	77
3.3.1 The emergence of captive finance companies	77
3.3.2 Retailers	78
3.3.3 Industrial based firms	81
3.3.4 Captive transportation based financing firms	81
3.4 General Electric Financial Services Inc.	83
3.4.1 Introduction	83
3.4.2 GE's strategy	84
3.4.3 GEFS and GECC	84
3.4.4 GE:s and GEFS:s financial standing	86
3.4.5 What are GEFS's competitive advantages? 3.4.6 Summary	88
3.5 General Motors Acceptance Corporation	91
3.5.1 Introduction	92
3.5.2 GM's stated strategy	93
3.5.3 General Motors Acceptance Corporation	93
3.5.4 Summary	100
3.6 Sears, Roebuck and Co	100
3.6.1 Introduction	100
3.6.2 Sears stated strategy	101
3.6.3 Sears Financial Service	101
3.6.4 Sears Mortgage Business	104
3.6.5 Conclusion	105
3.7 Summary and Conclusions	105

Chapter 4 Hypotheses and Research Process	110
4.1 Introduction	110
4.2 Asset services	111
4.2.1 Asymmetric information	111
4.2.2 Economies of Scope	115
4.2.3 Lack of Lending capital	116
4.3 Liability services	117
4.3.1 Payment Service	117
4.3.2 Storage of money service	118
4.4 The 'two-sided' nature of financial intermediation	118
4.4.1 The firm's decision in an incomplete financial market	120
4.4.2 Segmentation	122
4.4.3 Real-financial linkages	127
4.4.4 Taxes	130
4.5 'Pure' Financial Service	131
4.6 The research approach	132
4.6.1 The survey	134
4.6.2 The case method	135
4.6.3 Data collection of external data	139
4.7 The studies	139
4.7.1 Part A: The financial departments - case studies.	142
4.7.2 Part B: The real linkages - risk handling with a externally active financial department	143
4.7.3 Part C: A survey	144

Part A

Chapter 5 The Financial Activities of Three Swedish Firms	146
5.1 Introduction	146
5.2 Regulations and Taxes	146
5.2.1 The exchange rate system	147
5.2.2 Exchange rate regulations	148
5.2.3 Regulations of financial intermediaries	150
5.2.4 Taxes	154
5.2.5 Concluding remarks	157
5.3 The Study	158
5.3.1 The choice of firms and the outcome	158
5.3.2 The process	160
5.4 ESAB	161
5.4.1 Historical development of the financial activities	161
5.4.2 Segmented national markets: (D3)	166
5.4.3 Financial policy	167
5.4.4 Leasing and lending: (D5)	168
5.4.5 The international units: (D2)	172
5.4.6 The link to the industrial units	173
5.4.7 Areas of joint production: (D1+D6)	174
5.4.8 Taxes	175
5.4.9 ESAB's spectrum of financial activities	175

5.5 Swedish Match	176
5.5.1 Historical Development	176
5.5.2 Segmented national markets: (D3)	185
5.5.3 Financial policy	186
5.5.4 Leasing: (D5)	187
5.5.5 Economies of scope for 'pure' financial service (D6)	188
5.5.6 The international units: (D2)	188
5.5.7 Areas of joint production: (D1)	193
5.5.8 Swedish Match's spectrum of financial activities	194
5.6 Company X	195
5.6.1 Historical Development	195
5.6.2. Organization	198
5.6.3 The overall financial policy	199
5.6.4 Segmented national markets: (D3)	203
5.6.5 Leasing: (D5)	204
5.6.6 Economies of scope for 'pure' financial service (D6)	209
5.6.7 Areas of joint production: (D1)	211
5.6.8 The international units: (D2)	212
5.6.9 Company X's spectrum of financial activities	214
5.7 Analysis and Concluding Remarks	215
5.7.1 Organization	216
5.7.2 The research directions	227
5.7.3 Interaction with the banking system	234
5.7.4 Validity and Reliability	236

Part B

Chapter 6 The Yardstick	241
6.1 Introduction	241
6.2 Real-financial linkages; possible causes	242
6.2.1 Real interest rates and the business cycle	242
6.2.2 Inflation and nominal contracting	246
6.2.3 Deviations from the purchasing power parity	246
6.3 Measuring 'economic' exposure	266
6.4 Measuring the contractual exposure	269
6.4.1 Contingent claims	269
6.4.2 Exchange rate exposure	270
6.4.3 Interest rate exposure	271
6.4.4 A combined measure of interest and exchange rates' contractual exposure	273
6.5 Measuring non-contractual exposure	275
6.5.1 Measuring 'economic' exposure	276
6.5.2 Assumed financial relationships	279
6.5.3 'Muddling through'	281
6.5.4 Integrating the international dimension into the industry structure	283
6.5.5 Industry structure and firms' reaction functions	285

6.5.6	The international scope of the analysis	288
6.5.7	The sensitivity of non-contractual cash flows	290
6.6	Total financial risk	293
Chapter 7	ESAB's financial and operational exposure	295
7.1	Introduction	295
7.2	The operational exposure	298
7.2.1	Introduction	298
7.2.2	ESAB's history until 1980	298
7.2.3	ESAB in the Period of 1980 to 1986 - Changing the welding industry	302
7.2.4	ESAB's value chain	307
7.2.5	ESAB's business portfolio	310
7.2.6	ESAB's business area organization	311
7.2.7	ESAB's global competitors	313
7.2.8	Summary of general analysis	315
7.3	The financial exposure	316
7.4	The total exposure	318

Part C

Chapter 8	The Financial Activities and Organization of Swedish Manufacturing Firms	323
8.1	Introduction	323
8.2	Aim of the survey	324
8.3	The design	324
8.3.1	The set of firms	325
8.3.2	The design	326
8.3.3	Response rate analysis	329
8.3.4	Published data	331
8.4	The Results	333
8.4.1	Organization	333
8.4.2	Centralization and decentralization	342
8.4.3	Instruments and funding policies	346
8.4.4	Financial intermediation	350
8.4.5	The hypotheses	356
8.5	Concluding remarks	357
Chapter 9	Discussion and Conclusions	360
9.1	Introduction	360
9.2	Inwardly-bound activities: organizational aspects	361
9.2.1	The treasury's three dimensions:	361
9.2.2	Interaction with the banking system	370
9.2.3	Formation of treasury vehicles	373

9.3 Outwardly-bound financial intermediation	
activities	382
Hypothesis 1: Inter firm lending on the basis	
of asymmetric information	383
Hypothesis 2: The firms computer capacity	
might be used with the financial intermediary	
activities of the firm	384
Hypotheses 3 and 4: arbitrage and trading . .	385
D1: Economies of joint production	389
D2: Do the international units lend money to	
unrelated agents abroad	391
D5: Taxes and leasing	391
9.4 Reliability and Validity of Results	392
9.5 Areas for future research	394
 Post Scriptum	 396
References	397
Appendices	413

List of Figures

- Fig. 1.1 Bond issues as a percentage of GNP (7)
- Fig. 1.2 International credit and capital markets (8)
- Fig. 1.3 The research process (27)

- Fig. 2.1 Theories of the Firm in the 'market functioning' and 'uncertainty' space (39)
- Fig. 2.2 The firm's dimensions (42)
- Fig. 2.3 Spectrum of financial activities (48)

- Fig. 3.1 GEFS business for securities origination (91)
- Fig. 3.2 GEFS financial intermediary spectra (92)
- Fig. 3.3 GMAC performance (95)
- Fig. 3.4 GMAC's flow of sellable receivables (98)
- Fig. 3.5 GMAC's financial intermediary spectra (99)
- Fig. 3.6 Credit card volume 1983 (102)
- Fig. 3.7 Sears' organization of its financial intermediaries (104)
- Fig. 3.8 Sears' Financial Intermediary Spectra (104)

- Fig. 4.1 Some possible financial relationships between business parties (112)
- Fig. 4.2 Operationalization of the firm's dimensions (141)

- Fig. 5.1 Solidity of the three Firms 1980-1987 (160)
- Fig. 5.2 ESAB's Financial Ratios (162)
- Fig. 5.3 ESAB Group's treasury unit's organization, 1989 (163)
- Fig. 5.4 ESAB's spectrum of financial service, 1986 (175)
- Fig. 5.5 Swedish Match's Financial Ratios 1981-1987 (181)
- Fig. 5.6 Swedish Match's treasury organization in 1987 (182)
- Fig. 5.7 Swedish Match's evaluation system. (183)
- Fig. 5.8 SM's spectrum of financial activities 1987 (194)
- Fig. 5.9 Company X's treasury units late 80s (199)
- Fig. 5.10 Company X's Financial Ratios (203)
- Fig. 5.11 Company X's spectrum of financial activities in 1986 (215)
- Fig. 5.12 The interaction between the firm's dimensions (227)
- Fig. 5.13 New interaction between the firm and banks (235)

- Fig. 6.1 The oligopoly after a devaluation (253)
Fig. 6.2 Contractual, Quasi-contractual and Non-Contractual Exposure (268)
- Fig. 7.1 The studied dimension (296)
Fig. 7.2 The value added with different welding methods Manual Metal Arc (MMA)-/ gaswelding (307)
Fig. 7.3 ESAB's business area organization in 1986 (313)
Fig. 7.4 The global welding industry arena (315)
Fig. 7.5 Estimate of Exchange rate exposure ultimo 1979, 1983 and 1986 (320)
- Fig. 8.1 The type of organization of the treasury department (334)
Fig. 8.2 The country of incorporation of finance company (335)
Fig. 8.3 Main activity of the treasury units (336)
Fig. 8.4 Instruments used (347)
Fig. 8.5 Lending activities 1986 and 1987 (354)
Fig. 8.6 Leasing by the firms in the survey (355)
- Fig. 9.1 The inwardly-bound operations along the three dimensions (370)
Fig. 9.2 The new organization of the bank in the intermediation process (373)

List of Tables

- Table 1.1 Outstanding CP Issues in Sweden, 1987 (9)
- Table 3.1 List of 30 non-bank firms and 15 largest bankholding companies ranked by assets. (79)
- Table 3.2 Financial service offered by selected non-financial companies. (80)
- Table 3.3 Marketshare of auto loans outstanding: (81)
- Table 3.4 G.E.'s capital structure (86)
- Table 3.5 GECC's performance between 1981 - 1985 (87)
- Table 3.6 Financial structure of GECC and some key statistics (89)
- Table 3.7 Sears' profitability (103)
- Table 5.1 Company X's approximate netted amounts of financial assets (204)
- Table 5.2 Company X treasury vehicle 1 AB: Volumes and Flows for six years during the 80s (207)
- Table 5.3 UNIT2: Business volume and number of deals 1983-86 (210)
- Table 6.1 A priori expected behaviour with unexpected changes in exchange rate between HC and LC (288)
- Table 8.1 Response pattern in three tiers grouped according to size (330)
- Table 8.2 Size, liquidity and the formation of internal banks and finance companies (337)
- Table 8.3 Size, liquidity and the formation of treasury vehicle and leasing companies (338)
- Table 8.4 Percentage of sales abroad and formation of finance company and internal bank (340)
- Table 8.5 Foreign turnover and complexity in treasury operations (342)
- Table 8.6 Centralization and decentralization of financial activities in Swedish firms in 1987: funding and placement. (343)
- Table 8.7 Centralization and decentralization of financial activities in Swedish firms in 1987: financial intermediation and financial risk management (344)
- Table 8.8 The mean of type of sourced funds over turnover (347)
- Table 8.9 The correlation between sources of funds (348)
- Table 8.10 The sourcing of funds in firms with different organizational structure (349)
- Table 8.11 Ranking of the different categories of

arbitrage (351)

Table 8.12 Ranking of different categories of
position-taking activities (352)

Table 8.13 Mean of percentage of loans with an original
time to maturity (355)

CHAPTER 1

The New Options of Today's Treasurer

"For a long period of time, there have been certain generally accepted 'incursions' of nonfinancial business into banking and finance, as, for example, via the captive autofinance companies. In recent years, however, the nature and extent of the incursions of commercial firms' venture into banking and finance have resulted in a situation which is not just a change in degree but rather a change in kind. Combinations of major retailers and manufacturers with securities companies, insurance companies, thrift institutions and with nonbank banks are now commonplace"

E. Gerald Corrigan
President, Federal Reserve Bank of New
York (1986, p. 7)

1.1 Introduction

The emergence of a Eurodollar market and the revival of an intermediation process based upon negotiable IOUs¹ has started a process where industrial firms have been given new financial opportunities to conduct their financial activities outside the banking system. These new opportunities have had significant effects upon the firm's financial activities. New options and possibilities have arisen.

¹ IOU (I Owe you) will be used as a common term for any paper issued by a debtor indicating the debt and, possibly, repayment characteristics.

There are also indications that Swedish firms' treasury² are making use of these opportunities. In 1985, some Swedish manufacturing firms formed separate finance companies in Sweden, thus making it evident that they had started to perform financial intermediary activities.

As manufacturing firms have combined manufacture with financial activities since the renaissance or even earlier (Braudel, 1979, pp. 344 ff and 408 ff), this can hardly be considered a unique occurrence. Furthermore, the situation is not unique to Sweden as similar developments have been reported in countries such as the U.S.A., France, Great Britain and Japan. In Sweden, however, the growth of these activities has been very pronounced. Some major Swedish firms had previously started to organize 'internal banks' within their finance departments (Andersson and Engvall, 1984), but now these activities have become outwardly directed.

As the emergence of outwardly directed financial activities of firms seems to have disintermediation of the credit markets and securitization of financial markets as necessary but not sufficient conditions for these activities, we will briefly describe the changing financial and operational environment of Swedish firms.

This thesis studies some aspects of how these new opportunities have been used by treasury departments and also examines the nature of financial intermediary activities performed by industrial firms. We try to establish possible explanations for what the economic foundation of outwardly directed financial activities is when it is carried out by manufacturing firms. We also study how these activities are

² In this work, we will use the term 'treasury' for those parts of the firm which handle the financing and placement decisions of the firm, internally as well as externally. Financial department is used for the department handling the reporting systems, external as well as internal and other questions regarding evaluation of investments etc.

organized.

This chapter constrains the framework of the study and gives a description of the structure of the work. The only areas highlighted are those for which an overview is necessary before reading the following chapters. Issues will be covered fairly briefly being related to the narrow research questions we will pursue.

Firstly, some aspects of the changing environment of large Swedish firms are discussed, both with respect to the spatial configuration of their operations as well as the financial opportunities open to firms. This is followed by a discussion of previous research into the organization and activities of the treasury departments of Swedish manufacturing companies. Some remarks will then be made on the organization of treasury activities in U.S. industrial firms. The research questions to be pursued and our delimitations will then be stated. The chapter concludes with a short description of the structure of the dissertation.

1.2. The Changing Operational and Financial Environment

We will turn our attention to the changing environment of Swedish firms during the seventies and early eighties. These changes concern both the scope of the industrial activities of Swedish firms as well as opportunities available to them in the financial markets.

1.2.1 The internationalization of Swedish firms

The production structures of Swedish firms are becoming increasingly international (Håkansson, 1989), and investments have increasingly been made in markets previously only served through licencing or direct export. The increased globalization of the firm's networks, seems to be a reaction to the globalization of world markets, and of increased international competition.

According to Hörnell and Vahlne (1986), the outflow of foreign direct investments from Sweden increased dramatically from 1969. This outflow took the form of ownership of entities abroad, and consequently the number of foreign subsidiaries increased significantly.

1.2.2 Securitization and disintermediation

At the same time as product markets have become increasingly turbulent and international, financial markets have undergone fundamental changes. The breakdown of the Smithsonian agreement in 1972-73 resulted in a period of floating exchange rates. Inflation and large budget deficits seem to have created a situation where some major governments and central banks preferred, for a period, to use monetary targeting instead of fiscal policy to control their economies (FRB of New York, 1982).

The increasing, and more volatile, inflation rate during the seventies, is said to have caused increasing variability in interest rates. (Kvist, Nyberg and Wissén, 1985). The exchange rate system has become less predictable and exchange rates are perceived not only as variable, but as excessively variable by some (Frankel and Meese, 1987). Taken together, the increased volatility in the financial markets could have increased the importance of handling financial risks. Financial markets seem to have adapted to the new demands of investors and borrowers. The volatility in the environment, in combination with technological development and deregulation, have transformed financial markets worldwide (U.S. Congress Office of Management of Technology Assessment, 1984, p. 39)

In Sweden, the macroeconomic uncertainty has also been accompanied by the opening up of new opportunities for Swedish firms' treasury officers: The deregulation of Swedish financial markets, and the general trend towards disintermediation and securitization has changed the opportunity set of Swedish firms (see e.g. Berg and Näslund,

1988 and Oxelheim, 1988 p. 17).

For this study, the relevant features of the revival of the securities and capital markets, and the creation of financial instruments and techniques which unbundle and redistribute risk, is that the banking sector has decreased in importance compared to the situation in the fifties and sixties.

1.2.2.1 Disintermediation

We need to consider a phenomenon closely related to the securitization process: the process of disintermediation, i. e. that banks seem to perform less lending to, primarily, industrial borrowers than was the case previously. The lending is instead carried out directly by the investor, through the purchase of the borrower's IOUs (see section 2.4 for a discussion).

A bank handles both the transaction accounts as well as the savings accounts of its customers. These deposits are often of a demand type, i. e., the depositor can demand his money at any time. Nevertheless, banks seem to be able to lend money for longer periods to other customers who are not obliged to repay their loans immediately if demanded. Banks can perform maturity mismatching and asset transformation because they have access to cheap funding, and a stable core of deposit which gives their short-term funding the character of long-term funds (Deshmuck, Greenbaum and Kanatos, 1983a). Banks are aware that not all the money deposited will be demanded at the same time. A proportion of the demand deposits can, therefore, safely be lent. If, in spite of the bank's expectations, depositors all demand their money at the same time and a so-called 'run' on the bank arises, the Central Bank will, in general provide the back-up liquidity necessary for the bank to honour its obligations.

The banking system has performed these asset transformation functions since marginal banking was 'invented' by gold merchants in Amsterdam and London in the 16th century

(Kindleberger, 1984, pp 48-50). This does not necessarily mean that the banks have been the major credit enhancers since that time. Risky industrial investments over long periods were financed with the issue of long term debt, e.g. railway bonds in the 19th century. The preeminence of the banks was brought about firstly by the increase in the number of demand deposit accounts for salary purposes and, secondly, by the emergence of a middle and working class saving parts of their income in savings accounts (Gardener and Revell, 1988, p. 3-6). Much of this money was lent to commercial and industrial borrowers.

1.2.2.2 Securitization³

A large part of the flow between the investors and borrowers is apparently funnelled through the capital markets. Corrigan (1986) states that "[The] process of securitization generally takes two forms: the direct issuance of securities or the packaging of 'conventional' loans by banks or other intermediaries for sale to the market in the form of some kind of a pass-through or other security" The author regards the securitization process as the reaction to two peculiarities in the market.

"(1) the cost of financing in the securities-market is less than that of bank financing for some agents.

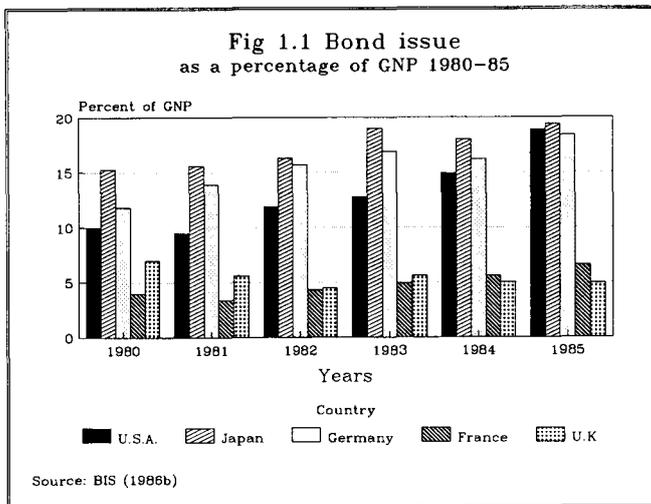
(2) that it has become desirable for some financial intermediaries to off-load certain classes of assets by "securitizing" loans and selling them into the market." (ibid.)

The increasing importance of capital markets can partially be seen in Fig. 1.1, which shows gross bond issues on national markets as a percentage of GNP. With the exception of the United Kingdom, bond markets appear to have increased in importance.

³ We perceive securitization as the facilitation of credit where the debt is manifest in an IOU, which might or might not be negotiable.

If the tremendous growth of the Euro-market is added to these figures, the trend would be even more clearly recognizable. Fig. 1.2 illustrates the development of the international credit and capital markets during the period 1981-1985, the growth of its volume, and the shift from syndicated Euro-bank loans towards the issue of securities.

In 1981, bank-credit accounted for 68 per cent of the total Eurocredit and capital market, a fraction which decreased to 9 per cent in 1985. Bank for International Settlement, BIS, states that "Further refinement of the data on lending by banks in the BIS reporting area to exclude refinancing shows that net new financing ceased entirely by 1984" (BIS, 1986b p. 131). This clearly indicates the extent of the shift towards securitized flows of funds in the international markets.

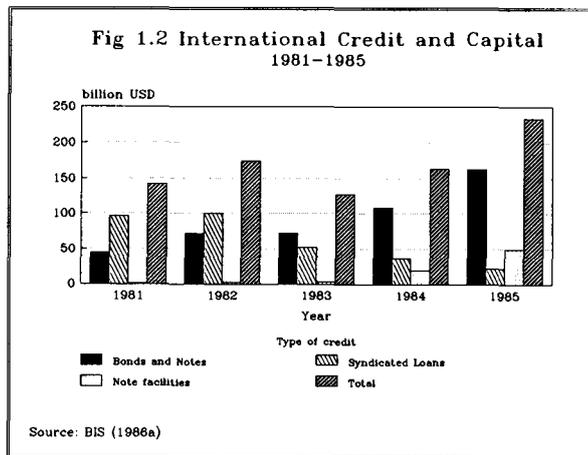


This dissertation does not attempt to explain why we today see more and more securitization of credit [See for example Gardener and Revell (1988) for a discussion of the history of securitization and its causes, and Rosenthal and Ocampo (1988) for a description of some of the techniques]. Disintermediation and the securitization connected to it has opened up new avenues which the treasurers of firms can use and our research will be directed towards the issue of ways

in which treasurers have used these new opportunities.

1.2.2.3 Risk-redistributing innovations

Another feature of the development in the financial market is the trend towards instruments and contractual arrangements that redistribute and unbundle risk. Watson et. al. (1986, p. 9) claim that the new instruments have provided non-financial institutions new opportunities to circumvent the banking system and fund themselves with non-bank savings.



Furthermore, the authors point to another feature of the recent development. The existence of option contracts, financial futures, underwritten Floating Rate Notes (FRNs), and other contracts all create ways to unbundle risks in combination with broad and liquid financial markets, thus creating a new set of opportunities for treasurers. These opportunities have also become available to Swedish firms. In 1976, Swedish firms were forced by the Central Bank to finance much of their international expansion through borrowing abroad. Since then Swedish firms have become active participants in the international financial markets.

The Swedish capital market has also become more active, at least in the short end. The Swedish commercial paper market

started in the spring of 1983. In 1987, the aggregate value of domestic commercial paper programs was MSEK 67,000 while the amounts outstanding totalled MSEK 27,080 See Table 1.1.

Table 1.1 Outstanding CP Issues in Sweden, 1987

	SEK bn
Companies	20.44
Local authorities	3.39
Mortgage institutions	3.96
Source: Financial Times, Feb 26 1987, p. 16	27.08

Until recently Swedish authorities regulated the long end of the capital market. Corporate activity in this segment has been primarily restricted to the financing of utilities. Swedish firms have recently attained the right to hedge trade-related foreign currency exposures with options. Furthermore, interest rate futures and options have been traded in the Swedish market since the beginning of 1986. Therefore, many Swedish firms now have access to both the international markets, and the newly-developed markets in Sweden. In addition, Swedish firms have access to the international futures exchanges.

If manufacturing firms fund themselves in the financial markets, they have attained a new set of options for the financial officers. The nature of these options will be discussed in the following section.

1.2.3. The treasurer's new situation

In the days of a primarily bank-driven intermediation process, the financial officers would turn to the bank when money was needed. We consider it as rather unlikely that the banks would grant loans to firms which would enable them to compete with the banks, at least if no other avenues of financing were open to Swedish firms. This was not the case until Swedish firms were forced to borrow abroad, where liquid capital markets existed.

The treasurer can be active in the capital market in five

different ways. Firstly, the treasurer can fund the firm's operations in the capital market instead of using the banking system. Secondly, the treasurer can finance the activities of the firm's customers or the activities of its suppliers. Thirdly, the treasurer can perform traditional financial intermediation functions vis-a-vis agents otherwise unrelated to the firm. Furthermore, the firm can start to compete in other bank-related areas, not necessarily performing intermediary activities, but what could be labeled 'pure' financial services. Finally, the firm can use the financial markets to take upon itself or unload financial risks.

The first function, to borrow money in the capital market, is not open to all corporations. A prerequisite seems to be that the corporation must break down an information barrier in order to gain access to the market. Another prerequisite is that the firm must have a reputation for good credit standing so that money can be lent without formal credit evaluation. One interesting question is the extent to which the borrowing is supported by instruments which shift risks. For example whether short term CPs (commercial papers) are backed by any swing lines or back-up lines of credit, i.e., to what extent the banks support this disintermediation with credit enhancing-facilities.

The second activity, that of financing customers and suppliers, has long been performed by Swedish manufacturing firms. (Pettersohn, 1976 and Ingves, 1984).

After the firm has broken down the information barrier and internalized the financing function, it has two further options. It can start to act as a financial intermediary towards agents otherwise unrelated to the firm. This is a totally different task from internalizing the finance function. Here, we have the question of what the firm's competitive advantage vis-á-vis the banking system is. This question could be put more exactly. What are the possible economic functions of manufacturing-linked financial

intermediation?

Finally, the firms could use the new techniques to unbundle risk and sell or take upon themselves financial risk with the derivative securities now available.

1.3 Previous Research

As these phenomena have reemerged fairly recently, very little research had been conducted on Swedish firms up to the time the present study was started in early 1986. However, during the period the research has been carried out some other studies have been published, and we have been able to integrate the findings of some of the findings into this work. Nevertheless, the literature survey, with a few exceptions, reflects the situation at the outset of this work.

Firms in the U.S.A have had access to well functioning capital and money market for years. Commercial papers and well run capital markets have existed for a long time in the U.S.A, a country with a more market-driven intermediation process than most other industrial countries (Berglöf, 1988). Outwardly-directed financial activities have been conducted by many firms for long periods of times. A study of non-bank financial intermediation of U.S. firms is reported in chapter 3. The organizational issues will not be discussed there however, as it appears that financial departments in larger U.S. firms are organized in a distinctly different manner to those of Swedish firms, at least at the outset of the period studied. In the following sub-section we will discuss this point prior to reviewing studies of treasury departments in Swedish firms. Thereafter, we will contrast Swedish firms with U.S firms and discuss the rationale for a study of Swedish firms.

1.3.1 U.S.-studies

The major U.S. firms have very large domestic market and the relative importance of their international operations is, therefore, significantly lower than for 'Continental' firms. This is especially true when compared to Swedish and Swiss firms. This has also led to a difference in the organizational structure of the U.S. firms compared to continental firms. Stopford and Wells (1972) reported that U.S. firms often conducted their international operations within an 'International Division' while 'Continental' firms often went from a 'domestic' structure to a 'global' structure without passing the intermediate stage of an international division. This split between domestic and international issues also seems to have had a profound effect on the organization of treasury departments in U.S. firms.

In a study of 187 U.S. firms' finance departments, Robins and Stoubaugh [1973, cited in Eitman and Stonehill (1983, p 642-643)] the authors report that the financial departments seemed to go through three different stages when international sales grew.

Firstly, when international sales volumes were low, there was often only one officer, handling international financial issues. When sales volumes grew, however, international financial issues were centralized to a department which attempted to handle all international financial issues, but at a level below the group treasurer's. The third stage was reached by large firms who had a significant portion of sales originating from outside the U.S. The complexity of the internal flows and the problems with operations on different continents, forced the firms to decentralize all international financial issues. Under the new organization the financial department, instead of central decision-making issued extensive guidelines which they monitored rigorously.

The same phenomenon was reported by Jilling (1980) when he studied the handling of foreign exchange risk in U.S. companies. He found that these firms started to handle

foreign exchange risk after the breakdown of the Bretton Wood exchange rate system. However, still in the late seventies, a large fraction of the firms had not started to integrate their interest rate risk with their management of exchange rate risk.

In an old study from 1970 cited in Eitman and Stonehill (1983, p. 644-649), the Conference Board found that 82.4 per cent of the firms responding had a division between the national and international treasury department. The same study reported that more than half of the firms responding had centralized their international financial activities to one point in the company hierarchy. They also found that this dualism between international and U.S. business had often resulted in very large firms either founding regional finance subsidiaries abroad (e.g. Coca Cola Company, IBM or General Telephone and Electronics), or centralizing the international financial issues to the international divisions, without integrating them into the domestic treasury.

These studies are fairly old. The increasing turbulence and the surge in financial instruments and the emergence of the Euromarkets have involved Swedish firms. There are also signs that the split between domestic and international financial issues is beginning to be resolved. In some firms, the group's treasury activities seem to be concentrated to a global treasury department. This has been reported by Business International Money Report for some larger firms (GTE(sic!): October 18, 1985 and General Foods: November 3, 1986).

While there only is anecdotal evidence to support this, it is possible that the split between domestic and international treasury operations is fading.

A further development is that the treasury departments of MNCs seem either to form special treasury vehicles, or to turn their treasury departments into profit centres. They centralize cash management and the handling of internal flows

of funds. Business International Corp. (1985) in a commercial, normative report on 'global cash management', shows how firms are opening up treasury vehicles to centralize cash management operations, netting, re-invoicing and internal forfeiting of inter-group trade. No quantitative data are provided.

Among the reasons given for centralization were that the treasury vehicles enabled firms to economize on financial management skills - to benefit from economies of scale, to benefit from portfolio advantages when having one treasurer, to decrease transaction costs, to benefit from arbitrage opportunities and to increase the payment discipline within the group.

Business International recently published a report on treasury management (1987) based upon interviews of corporate financial managers and various functional experts. On the basis of an undated survey, Business International claims that almost 45 per cent of the firms responding wanted to centralize their financial operations further (p. 19). Business International further gives examples of how some MNCs transform their treasury departments into profit centres or even 'in-house' banks, although they perceive this to be an exception. These firms are then active in foreign exchange trading in the money markets and in 'financial assets and liabilities management'. These developments are fairly recent and the reasons behind them are not fully understood.

1.3.2 Swedish studies

Several studies into the financial activities of Swedish firms have been performed. Pettersohn (1976) studied the borrowing and lending activities between companies. These were primarily trade related credits, and Pettersohn studied the aggregated volume of the lending. Furthermore, Pettersohn found no evidence that Swedish firms exploited the covered arbitrage opportunities between Swedish financial markets and markets of countries to which they were exporting. According

to the author, a possible explanation is that the Swedish market in forward contracts in Sweden is too thin. He also suggested that it was possible that Swedish firms therefore took uncovered positions to exploit existing interest rate differences (p. 254).

Leksell, Kuylenstierna and Palm (1980), studied the non-Swedish bank relations of Swedish firms in a survey mailed to 200 Swedish companies. They concluded that Swedish firms had obtained a greater number of foreign bank relations through their expanding international network of subsidiaries. The number of foreign bank relations was also expected to either be either constant or to increase (p. 5). This was seen as a sign of the internationalization of the financial function, where the financial network of Swedish firms had increased with the expansion of their foreign activities.

Lindholm (1987) mentions four activities which are performed by the company for which he is Vice President Finance (CFO). These are cash management, foreign exchange dealing, borrowing and arbitrage as those performed by the firm's financial entity his firm formed.

The organization of Swedish treasury departments has been discussed in different contexts, though in connection with exchange rate related issues. Ugglå (1971) studied the foreign exchange activities of larger Swedish firms and found that the ability to handle foreign exchange positions increased with increasing centralization (p. 235) and that the ability to make decisions about foreign exchange positions was dependent on good bank relations and even more so on bank advice. Elvestedt (1980) studied how foreign exchange matters were organized within Swedish firms and observed two contradictory forces: first, the need to keep the taking of currency positions decentralized, at the level of the operative business units making the pricing decisions for the firm's products; second, that high transactions costs force the firms to centralize the decision-making to the

financial department. At the time of the study, 70 per cent of the responding financial officers did not believe that the organization of the financial departments activities would change in the immediate future. (p. 124). A majority also believed that the interaction between the financial and operative side of the firm would become more frequent, as a result of the exchange rate uncertainty (p. 132).

Andersson and Engvall (1984), studying 22 Swedish multinationals, found that the financial activities, especially the foreign exchange trading, were increasingly performed by internal banks founded within the group headquarters financial department.

Oxelheim (1984) in an interview study with 19 Swedish firms found that 18 firms had a very centralized decision-making structure for decisions concerning exchange rate positions. Nevertheless, 5 of these 18 firms had the exchange rate responsibilities delegated to both Swedish as well as non-Swedish subsidiaries, while seven further firms had delegated exchange rate responsibility solely to non-Swedish subsidiaries. The author reports that the centralization has resulted in conflicts between the subsidiaries and the central finance department.

Hedman (1985) in a study of how exchange rate issues are handled by Swedish firms conducted on behalf of the Swedish Central Bank, observed that one of the 12 companies studied had formed a separate legal entity which conducted the spot and forward deals for the entire group (p. 36). She also observed that the finance function had gained in importance relative to the competence provided by the banks, and that firms considered that the entire organization had become more aware of the issue of currency risk. Furthermore, procedures had developed within the firms to handle these issues. Her general conclusion was that the handling of currency matters had changed in a significant way.

Lindholm, (1987), demonstrates how the firm for which he was CFO, used a separate legal entity to carry out both the activities previously performed by the internal bank as well as other activities.

1.3.3 Comparing apples and oranges?

Swedish firms differ from U.S. firms. The size of the studied U.S. firms, their ability to tap a large domestic capital market for funds, and the relatively minor importance of international sales point to this conclusion. Firstly, most studies are conducted on what we could term 'Fortune-500 companies', and although there are several large companies in Sweden only a few are on Fortune's list: solely international as compared to the list of U.S. firms. If, as Robins and Stobaugh's study indicate, size is of importance when organizing the treasury department we might compare apples with oranges when comparing U.S.-firms' organization with that of Swedish firms. Nevertheless, studies of U.S. firms might reveal some of the logic behind the phenomena we study.

Secondly, the U.S. firms have operated upon what was once the largest capital market in the world, and their funding problems could often be solved in the home market. Swedish firms face a domestic market which, at times, has been regulated or non-existent. They were also forced to fund themselves abroad for an extended period after 1976. This will definitely increase the international focus of Swedish firms, when compared to those in the U.S.

Thirdly, Swedish firms have a very large part of their sales generated from abroad. In addition, many firms also have the production capacity localized abroad, which give the firm the complexity mentioned by Robins and Stobough when describing firms in the third phase.

As we have evidence of an increasingly international production structure, we could expect Swedish firms to be good at handling, and possibly integrating, international

financial issues with domestic. In the Swedish studies, we do not have any evidence, so far, of a dualism between the domestic financial department and international departments. We could, therefore, expect a more global view of treasury management in Swedish firms, but as complexity in international operations seems to increase the tendency to decentralize activities, we cannot say what the end result is. We have also seen that Swedish firms, like most progressive firms in the Business International Corp. study, have formed separate in-house banks, as reported in the Central Bank study. They have also formed separate finance companies. What this does to the organizational structure is not well understood.

We have seen some early evidence of lending activity among Swedish industrial firms, but these activities seem to have their rationale in restrictions imposed upon size of the banking system's lending portfolio, restrictions not upheld in the U.S. Otherwise, we do not know much about the financial intermediary activity of new entities formed lately by some Swedish firms, in Sweden as well as abroad.

Consequently, we have reason to believe that Swedish firms could be fairly advanced in the way they organize their treasury functions; the degree of internationalization of Swedish firms and the apparent lack of duality between international and domestic treasury function point in this direction. U.S. firms have much more experience from activities in market-driven intermediation environments and can therefore be regarded as being more advanced in these respects.

1.3.4 Rationale for the study

Several studies of Swedish firms' treasury departments have been conducted. This is a necessary and interesting area of study. First, due to the new financial instruments made available to Swedish firms, derivative instruments as well as the opening up of the international capital markets to

Swedish firms after 1976, Swedish firms have been given new options to act in the financial markets. They are given new opportunities and it would be of interest to study in what way and to what extent Swedish firms act as borrowers as well as lenders. The question of what kind of financial activities are performed by Swedish manufacturing firms is unresolved. In the light of the increased number of financial instruments available to firms, it would be of further interest to study what kind of instruments are used for funding as well as for hedging, arbitrage and position-taking activities.

Pettersohn (1976) states that he would like to see a study based upon primary data from the firms' financial statistics. This would make it possible to assess the importance of different segments of the credit markets. (p.282) A better understanding of Swedish firms' activities in the financial markets is of interest, especially after the opening up of the international capital and lending markets.

Furthermore, the regulations constituting the rationale for the grey capital market have been abolished⁴, and the rationale for firms lending today might be different to the rationale during the period of active Central Bank credit policy. Such an analysis would require us to identify economic motives for firms, usually considered to be net borrowers, to act as lenders. The new options for treasurers are many and the situation seems to require a study of how these options are used.

As there seems to be a trend in Sweden as well as abroad to form treasury vehicles or international finance companies, we also want to see what activities these units perform. Do they contribute to the the centralization of financial activities or are they tools to handle the complexity inherent in 'truly' international companies? How are they governed and

⁴ Ingves (1981) studied this grey capital market which was mainly regulation induced.

how do they interact with the industrial units, especially as regards the exchange rate issues, which, as Elvested reported, should be handled both centrally as well as locally?

1.4 Research Questions

As we have seen in previous sections, financial officers of Swedish firms face new financial opportunities when they act externally: providing financial services and in a more narrow sense acting as financial intermediaries. We are concerned with some aspects of how they make use of these opportunities.

I.

The dissertation describes the financial intermediation activities of privately owned large non-cooperative Swedish manufacturing and transport firms after 1979 and especially the situation at the end of 1987.

(Ia) In particular, we intend to describe the scope and volume of the financial intermediary activities performed by large Swedish manufacturing firms. By financial intermediary activities we mean activities which result in the lending and refinancing of money to entities not controlled by some group firm. Furthermore, this lending activity should result in loan documentation, thereby excluding traditional short term trade credits which are more well studied. We also exclude loans provided by the sale of assets, financial or otherwise, with binding repurchasing agreements. These sales and lease-back agreements are likely to have different rationales from the phenomena we deal with.

(Ib) We will describe the way financial activities are organized in large Swedish firms at the end of the period studied. This will be done with the sub-goal of explaining why Swedish firms open up foreign financial subsidiaries abroad.

II.

We also intend to find possible explanations for the emergence of financial intermediation performed by Swedish firms.

(IIa) As part of this, we want to study the way in which a Swedish firm uses the new financial opportunities to handle its risks, and see in what manner the risk is distributed between them, the financial markets and the banks, in order to gain insights into the present structure of risk distribution.

(IIb) As a necessary prerequisite to IIa, we will discuss the construction of a yardstick for measuring financial risks, primarily exchange risks, that incorporates the industry structure's effect upon financial risk. The yardstick will be operationalized for a specific macroeconomic and firm setting.

1.5 Delimitations

This work has to be seen in the context of two general questions: first, through which entities is the flow of funds between lender and borrower funnelled and what is the division of labour between these entities?; second, what is the rationale for manufacturing linked financial intermediation?.

No attention will be devoted to the first question beyond some descriptive passages describing the actual behavior of the firms studied. No explanations for the emergence of bank-driven and/or instrument driven intermediation processes will be given, nor will we try to find such explanations in the literature. Our prime theoretical question is more narrow: given that the opportunity for "non-bank" financial units exists, what is the economic rationale behind these units?

In order to address this question, we have to create a guideline for what the realm of the manufacturing- and traditional financial intermediation is.

1.5.1 A bank is a bank is a bank?

Banks perform many of the functions of financial intermediaries. Klein (1971) considers banks to be a subset of financial intermediaries, and hence sees financial intermediaries as basically similar to banks but lacking some of a bank's characteristics. Klein argues that the distinctive feature of banks is to provide the nation with a payment system. Fama (1980) also perceives banks as providers of a transaction cost-efficient payment system. Nevertheless, he argues that in an unregulated environment the distinction between banks and other portfolio managers will be blurred.

Corrigan (1982) makes the same distinction between banks and other financial intermediaries as Klein, but adds two other distinguishing features. First, he sees banks as the back-up source of liquidity for all other institutions. Secondly, banks are the transmission belt for monetary policy. Pierce (1985), on the other hand, claims that NOW- (negotiable orders of withdrawal), super-NOW and MMMF (money market mutual funds) accounts are "demand deposit"-type accounts that have blurred the distinction between banks and nonbanks in the US-context. Pierce further argues that the role of banks and thrifts in the nation's payment system are created by government fiat, which excludes other potential entrants from the payment system. Therefore, the role of the banks in the payment system is the result of regulation, not of economic forces. Pierce further states that open market operations of the FED affect all financial intermediaries directly, and hence that monetary policies are not only performed through the banking system. Reserve requirements and the discount window are also creations of regulators and not the result of economic forces. The Central Bank is seen as the only back-up source of liquidity, and hence the argument that banks are the back-up source of liquidity is

dismissed.

To us, the problem is partly semantic. When Klein and Fama perceive banks as the administrators of the nation's payment system, they define 'banks' as entities performing certain activities unique to banks. When Pierce and Corrigan debate, they seem to define banks as entities calling themselves banks. Others, legally prevented from calling themselves banks, perform activities, i.e. supply demand deposit accounts, which de facto but not de jure are part of the US payment system, and hence would be called banks in Klein and Fama's world. Instead of trying to identify corporate banks, according to some selected definition we will concentrate upon identifying corporate financial intermediation activities.

The normative question of whether non-financial firms should perform financial intermediary activities or not will not be treated. This problem concerns the "safeness and soundness" of the financial system, and the shrinking of the monetary belt, within which the Central Bank can use reserve requirements to control the money supply in the economy. This question, interesting as it is, is left to others to solve⁵.

Insurance companies and financial service related firms can also perform financial intermediation. Clearly, some of the portfolio functions traditionally performed by banks are now conducted by e.g. life insurance companies. We will not study these firms' financial intermediation activities due to the different nature of their core activity compared to manufacturing firms

1.5.2 'Over'-liquidity

Another problem area is touched upon by Andersson and Engwall (1984). They describe the build-up of "internal banks" within

⁵ See e.g. Hörngren and Viotti (1988) for a discussion of this issue in a Swedish context.

some Swedish MNCs as their way to handle large over-liquidity: in the Swedish debate, several factors are said to contribute to the liquidity of Swedish firms: (1) the government budget deficit, (2) the prohibition of prepayment of foreign debt undertaken to finance FDI which generate cash-flows that has to be repatriated to the Swedish owner, (3) the low level of investment, (4) temporary restrictions on the size of dividend growth.

Hedlund and Hagström (1986) mention that the companies place their over-liquidity through their "internal banks", and also that they circumvent the financial intermediaries by issuing their own debt in the money and capital markets. Unfortunately the term liquidity in itself is difficult to operationalize, and the determination of an adequate level of liquidity is also a difficult task. We do not perceive over-liquidity as the prime reason behind the emergence of corporate financial intermediation. The phenomenon has been observed in a multitude of countries, in companies with low levels of liquid assets perform some financial intermediary activities in making long term loans to their customers. In the U.S., where the financial system has been the most market-oriented, this type of activity has been performed by several companies for more than two decades. Although we will examine in what manner liquidity is related to financial activity, we do not attempt to develop a measure of what should constitute 'over'-liquidity, and therefore will only treat the issue in passing.

1.5.3 Internal or external control over a business

The internal control aspect of separate entities handling the financial flow of the entire corporation is interesting. Andersson and Engwall's study indicated that the MNCs studied wanted to centralize the financing activities and divorce them from the operational activities of the firms. That the centralization of the firm's financial activities to one unit - an "internal bank"- can lead to an increased portfolio mentality from group management vis-à-vis the different

businesses of a firm, and that the firm becomes an "internal capital market" is well known, (see e.g. Williamson, 1975) The capital markets perform an allocating and controlling function which possibly could be imitated within a firm. The same functions performed by a bank in the credit market can, of course, be performed by an internal bank within the firm. Such aspects will not be considered in this study.

1.5.4 Swedish scope of the study

Neither will we attempt an international comparison, although we have scattered evidence of similar developments not only in the U.S. but also in France, Great Britain and, recently, in Western Germany. We will restrict the study to privately owned, Swedish non-cooperative manufacturing firms and to their financial intermediary activities in the Swedish and foreign markets. We will use the description of the U.S. market when generating hypothesis and research directions for the study. We restrict the study to Swedish firms for two reasons.

First, we primarily have access to Swedish firms and it would be difficult to attain the same depth in the study if we studied non-Swedish firms.

Second, the regulatory and legal characteristics of different countries influence the financial activities of firms, and we want to keep the legal framework constant.

We therefore have to restrict the study to Swedish firms, with their group headquarters in Sweden, and where the group is not a junior part of an international group.

1.6 Structure of the Dissertation

1.6.1 The process

We are studying fairly 'new'⁶ phenomena. In the previous subsection we stressed the theoretical uncertainty about why firms engage in financial activities and we also know that few studies have been made about the external financial activities of Swedish firms. There is not enough empirical information about these activities to build theory either. We will therefore have to try to obtain more empirical data, before discussing the situation in Sweden.

Consequently, we will apply a more elaborate approach when generating our hypotheses for the Swedish context. First, we will discuss what theory of the firm to base our study upon, and then we will discuss the theory of financial intermediation in order to find theoretical explanations for financial intermediation performed by ordinary financial intermediaries. Second, the external financial activities of U.S firms will be studied with the help of secondary sources. These two studies will then be combined with institutional knowledge about the Swedish financial markets and regulations, and ideas for the Swedish context will be generated.

In the empirical part, three different approaches will be used when collecting the necessary data, and these will be undertaken simultaneously for two reasons:

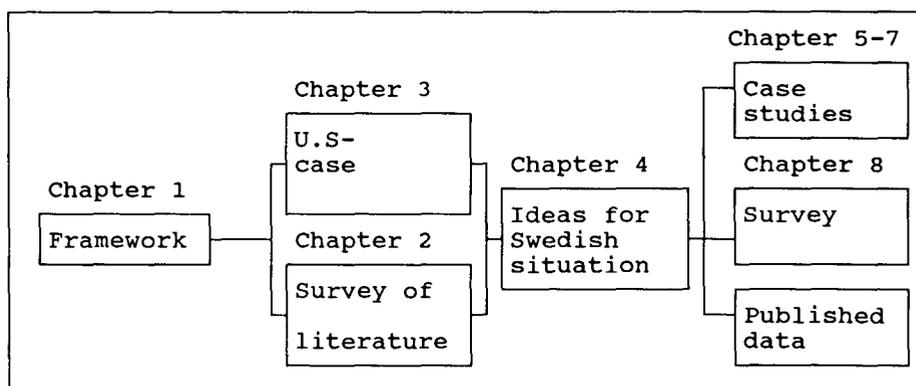
- we want to study the phenomenon during a specific time-period, basically ending in late 1987, so that institutional arrangements are the same when we conduct the entire study;
- we must use a several methods in order to be able to pursue different questions which demand a greater depth of empirical content. Certain issues are likely to require that a large amount of primary data has to be collected, and other issues can be resolved with more standardized data collection

⁶ New in the sense that modern economic theory has seen little of external financial activities performed by manufacturing firms.

instruments. Publicly available data may also be of value. Furthermore, the multiple points of data will help to validate observations and make the outcome more reliable than if we relied on one single source of data.

This will enable us to cover several of the issues raised, but with differing methodological strength. The structure of the process is depicted graphically in Fig. 1.3. We will discuss the methodological strengths and weaknesses of the three methods used in chapter 4.

Fig. 1.3 The research process



1.6.2 Road map

We will in chapter 2, discuss the theory of the firm that will be used when attacking the problem of finding economic rationales for financial intermediation performed by manufacturing firms, stressing that few previous works have examined the problem. It is difficult to study the financial decisions of firms within the context of traditional financial theory, which normally takes a neo-classical view of the functioning of markets. We therefore stress the importance of attaining empirical and theoretical background before trying to formulate any hypothesis. The need for both broader empirical investigations and more specific in-depth studies, given the novel nature of the topic studied, will be discussed. In chapter 2, we further review the microeconomic theory of financial intermediation which together with the

empirical observations in the study of manufacturing and retail-linked financial intermediation in the U.S.A. (chapter 3) will constitute the basis for the hypotheses and research directions generated in chapter 4. In this chapter the different studies and their aims are discussed.

The empirical studies are reported in three parts (A to C) in chapters 5 to 8. In Part A (chapter 5), there is a report on the result of a study of the evolution of three firms' financial departments and the tasks they perform. Part B (chapter 6-7) will concern the risk position of a firm engaged in manufacturing-linked financial activities. Chapter 6 discusses in what manner financial risk should be measured and the yardstick used for measuring financial risk is presented, based upon one view of financial relationships. In chapter 7 the empirical case study is presented and discussed. In part C, (chapter 8), the results from a survey mailed to the fifty largest Swedish manufacturing and transportation firms are reported. The final chapter covers the results of the different studies and provide suggestions for further research within this field.

CHAPTER 2

The Theoretical Background

2.1 Introduction

When a research project commences, the theoretical base is usually clear; we know whose shoulders will support us as we continue to study a particular question in greater detail. This work originates in an empirical observation: that Swedish manufacturing firms have started to act as financial intermediaries; the theoretical base for a study of this fact now has to be found. The choice of theory is partly a methodological one: a suitable theory has to be chosen. Several theories of the firm exist and we will discuss some of them in section 2.2.

In this work, we consider financial services performed by companies whose core activity is manufacturing. In order to do so, we will have to find a suitable description of different types of financial activities. Financial service is according to our broad definition the facilitation of financial flows between two different agents, and we will try to give a taxonomy for these activities: the spectrum of financial activities. We then narrow the view to financial intermediation and review the microeconomic literature on financial intermediation theory, searching for an economic

function of financial intermediators. The chapter closes with a short summary.

2.2 The Theoretical Limbo

A firm which finances itself with debt combines financial debt and real assets under one legal title. The management of these production factors will determine the value the firm has, and to us it will be of importance to understand under what conditions the financing of the firm is important to its value.

Standard financial theory usually perceives the company as a black box, putting different production factors into a production function, mostly linear, and receiving a (positive) cash flow as a compensation for the output. The existence of the firm is usually explained with indivisibilities of production factors and economies of scale. The value of the firm will be totally determined by the value of its future cash flow. The financial structure is totally uninteresting as long as financial markets are perfect and real and financial decisions are taken separately from the investment decisions. This is a problem, as the firm is our main object of study and, furthermore, the financial behaviour of the firm is at the focus of the study. We have a theoretical limbo where the object we study is not at the core of the theory we a priori would want to use and the activity we study is not an activity which has an economic value. Therefore, one could consider other models of the firm to base the study upon, other shoulders provide support on. We will look into some of the different alternatives.

In our view, the theory of the firm is determined by the kind of market it arises out of. This problem has at least two dimensions: what kind of risk the firm is absorbing and what kind of imperfections from the model of perfect competition constitute the foundation of the firm. The kind of risk which is attributed to the firm and carried uniquely by the firm is

linked to what kind of information about the firm the market is able to process. Most theories of the firm take some imperfections in the markets as their starting point. The risk aspect is not often considered, but is in our view implicit in the models.

The firm in the standard financial theory originates out of imperfections in the workings of the real markets. Perfect competition, requiring an ocean of competitors does not arise because some production functions enable one firm to reap economies of scale and/or of scope. This makes the firm a significant entity, as it can now act in a different manner from that of members of the perfect markets ocean of competitors. These types of imperfections are not said to affect the financial decisions of the firm. We will try to find theories which could explain why the financial structure of the firm is of interest.

It should, then, be useful to start our discussion with the first theory to incorporate risk into the discussion of the firm. outlined in Frank Knight's essay 'Risk, Uncertainty and Profit' (1921). The author generated several conceptual ways of discussing the inclusion of risk and uncertainty in models of the firm.

In Knight's view, the firm's riskiness was swallowed by the market. Diversification was not seen as being inherent in the firm. But the firm still had to swallow the uncertainty, the unassessable part of the variability of the firm. We could call uncertainty the unknown effect on a firm's cash flow when a certain 'state' occurs. In this world, the outcome of a state is not totally known to the market and the firm will have to handle this outcome. According to Knight, the fact that the firm swallows the uncertainty is one of the reasons for the firm to earn 'above economic rent'. The firm handles uncertainty either through the entrepreneurs or managers who can assess this uncertainty better than the average individual.

The division between ownership and top management was, therefore, seen as the result of owners wanting to find those men who were best at assessing the uncertain outcome of the business venture they operated and who were accordingly remunerated better, on the understanding that they share some of the business risk⁷. The hierarchy was seen as a way of assessing and resolving the problems of uncertainty.

Coase (1937) argued against Knight's view that the uncertainty was the reason for the firm to exist. He argued that men with better knowledge about the 'uncertainty' could sell this advice and which therefore does not have to be part of the firm. This is a valid remark - something has to be added in order for the firm to have to employ people with the best ability to predict uncertainty. Coase instead argued that the firm is a place where the market transactions are replaced with command structures and this is the 'the distinguishing mark' (p. 389) of the firm. Williamson (1975) provided a more rigorous extension of this work.

Another way of treating the uncertainty, is to do away with it. Debrue (1959) and Arrow (1964) made this by modelling an economy without uncertainty. Applied to the firm, their theory, in its 'purest' form claims that the firm's cash flows are contingent upon future events (states of the world) and that the value of the firm will be determined by the aggregation of individuals' preferences in the different states and their subjective probabilities for the state to occur. If the financial instruments available in a market of this kind enable the individual investor to combine securities in such a manner that he can create any kind of state contingent cash flows, the market is 'spanned' and the firm's own financial decisions have no economic value to the investor. All variability in earnings is determinable here, the effect on the cash-flow when different states occur is

⁷ Frank Knight could, from a Swedish perspective, be seen as an early proponent of the 'pilotskola'.

known in advance. Everything is risky, but only the state probabilities are uncertain. What remains is 'market risk' or 'undiversifiable risk', which is not cause enough for the firm to exist. The market is presumed to absorb most of the risk and only price the undiversifiable risk. If this model of the world was the true one and if markets were spanned, the firm's financial decisions would not matter.

The separation of the firm's management and the residual claimants has been used as the pivotal point in a theory of the firm, based upon the idea that the firm's management has taken control of the firm. Management pursues different goals from those of the owner. Baumol (1967) modelled the firm as maximizing growth instead of profit. Eichner (1976) has modelled a firm from the notion that the management has control over the firm, optimizing long term profitability, but where the firm is forced to finance growth internally, as capital markets are perceived as being unable to provide financing. In our view, this total separation of control might have been correct in a world where the capital markets were not able to fund any takeover attempts, but in today's world, where firms' management has become vastly aware of the threat of non-profit optimizing behavior this seems less relevant. As to Eichner's model, there is an addendum; what we study are those firms which are able to borrow more funds than they need and lend these funds to others. It therefore seems as if Eichner's second assumption is also invalidated by the recent opening up of capital markets. In this context, it becomes evident that a theory of the firm cannot be set up without a specification of both why there is a separation of the ownership and control and assumptions about how the market mechanism is working. If the market for corporate control becomes more efficient, the behavior of firms' management will also change. As we have seen in the previous chapter, this has happened. We will therefore not pursue this kind of theory.

Instead, we will examine some theories which seem to be more

promising. The first involves small deviations from the neo-classical model maintaining the separation between real and financial decisions. Here, the separation between ownership and control is of less importance, but in this setting one could explain why firms have to hire management, not buy advice. Second, the neo-classical theory of the firm combined with transaction costs and limitations upon rationality of the economic agents will be discussed. This is basically the extension of Coase's work conducted by Williamson.

There is also one extension we which to pursue: if the market in which the firm is modelled matters, different assumptions about the connection between the real and financial sectors could be of importance. As there has been some interest in the area of 'real-financial linkages' and as these issues have relevance for the risk position of the firm we will consider them. No theory for the firm's financial decision has to our knowledge been developed in this context, and we will just discuss the implications of this kind of reasoning on what might constitute the rationale for the firm's existence. The implications for the financial decisions will be discussed when we develop our hypotheses.

If real-financial linkages exist, the firm will have to adjust its financing to the impact the financial linkages have upon its operation's value. If the neo-classical model holds with slight imperfections in explaining why financial intermediation arises, the firm only needs to overcome the imperfections in the financial markets when making its financial decisions, albeit at a cost, making decisions relevant.

2.2.1 The neo-classical theory of the firm with mild imperfections

In a neo-classical world, the financial activities of non-financial firms have been said to leave shareholders' wealth unaffected. Modigliani and Miller (1958) argue that the firm's cash flows produced by its assets are its basic

resource. The mix of debt and equity does not influence the total value of the financial instruments issued by the firm.

This result is derived by arbitrage and according to Fama (1978) it holds in situations where there are: (1) Perfect capital markets; (2) Where private investors and corporations have equal access to financial markets and consequently the financing decisions of firms do not affect the characteristics of the portfolio opportunities available to investors; (3) Complete agreement or homogeneous expectations among market participants exist; and (4) the firms' investment strategies are given⁸.

Obviously some deviation from these assumptions has to exist in order for the owners of the firm to be able to benefit from the handling of financial decisions⁹.

Models constructed in order to explain the importance of financial decisions are also based upon deviations from Fama's basic assumptions about the financial market. Taxes are both said to give debt financing tax shelter as the interest paid is tax-deductible (Modigliani and Miller, 1963), or because there are different tax clienteles with different marginal taxation of interest income and dividends. (Miller, 1977 and DeAngelo and Masulis, 1980). The cost of bankruptcy, i.e., the destruction of real assets during a bankruptcy, is argued to restrict the amount of debt the firm can take upon its balance sheet (Kraus and Litzenberg, 1973 and Kim, 1978). On the other hand, it has been argued that the bankruptcy cost is small, especially if the relevant measure is used - expected bankruptcy cost (Warner, 1977).

Other reasons for the choice of equity instead of debt are

⁸ Through this prerequisite, Fama recognizes that the investment (real side) decision might have an impact upon the choice of financial structure.

⁹ Unless financial transactions are made at prices that deviate from market prices.

signalling of trustworthiness (Leland and Pyle, 1977) and the bonding of agents, preventing them from diverting 'free' company cash flow for corporate 'perks'-consumption (Jensen and Meckling, 1976 and Jensen, 1986).

These arguments for financial decisions to be relevant in a neo-classical world are of interest, not only because they give a rationale for financial decision-making in the first place. They are also of use when we study the reasons for financial intermediation suggested in the literature (see section 2.5 below for a discussion of these arguments). Furthermore, the discussion illustrates that financial decisions are also relevant in a neo-classical world, even though that imperfections in the way financial markets work explain the importance of financial decisions, not possible connections between real and financial markets.

2.2.2 Neo-classics with psychological limitations

Another way to resolve the problem of why the firm exists is to introduce another set of assumptions about the agents acting in an economy. One assumption in the models of finance is that agents are rational. Williamson (1975), on the basis of work by Herbert Simon and Ronald Coase, argues that agents are rational but only up to a certain point, after which their rationality is bounded. Furthermore, he argues that the future world is uncertain and complex; individuals will have problems in handling the complexity of the future, and they will have to arrange costly conflict resolution models handling the uncertainty of the future. At a certain point, the complexity and limited rationality creates a situation where conflicts are handled by hierarchical sequential decision-making within a firm, and is not left to the market with its costly conflict resolution mechanisms. Instead of perceiving uncertainty as something the market cannot, but the entrepreneur/manager can, assess, uncertainty is seen as complexity, complexity which cannot be handled in a transaction cost efficient manner and which therefore has to be handled within a firm, with its hierarchical decision-

making processes.

This model does explain why firms exist and could also explain why financial decisions within a firm are of interest¹⁰. Williamson (1988) has only recently tried to extend this work to explain the structure of a firm's debt and equity. He presented an attempt to resolve these problems within the framework of transaction cost economics. Debt is chosen as a conflict resolution mechanism and a single project would either need this mechanism or not. The basic idea is that the firm consists of different projects, and that each project analysed separately would be either all debt or all equity financed. The firm's debt equity mix would then be the sum of all project financing. The mix of projects would consequently determine the capital structure of the firm. In this work, the emphasis is more on the structure of contracts between the firm and other agents, not on the uncertainty resolution character of the firm. In our opinion, Williamson seems to move more towards a view that informational problems in combination with moral hazard comprise the rationale for the firm's existence. The tools and concepts used are very much the same as those used by financial economists when they construct a theory of the firm.

2.2.3 Real-financial linkages

The firm can be modelled as acting in a world where money matters for real decisions, i. e. the structure of financial claims will affect the value of the firm. Even if this were the case, standard financial theory would not per se accept that this would make the financial decision relevant to the firm: The MM-indifference proposition assumes that the firm's cash-flow must determine the value of the firm. There are two problems associated with this argument. First, it assumes that any investor can use 'home made'-leverage to profit from any pricing which would make the firm's market value

¹⁰ The M-form firm as an internal capital market for the firm (Williamson, 1975, pp. 141-144).

different from the value of its cash flow. This might not be the case. A second problem will be that the firm might not publish all the data needed to identify the correct value of the firm's cash flow.

In such a situation, where money matters, and investors cannot identify in what manner it matters to the firm, the firm will have to handle the financial decisions themselves; financial decisions become relevant. This is a breach with the notion of all variability in the prices in the markets being assessible, being a risk, instead of uncertain. In Knight's terminology, the firm starts to absorb uncertainty, and here we also see that this is possible, given imperfect capital markets and informational asymmetry. This is also the explanation of why the firm does not, as Coase suggests, buy advice from those individuals who are good at predicting the uncertain¹¹. Information asymmetry also creates a situation where those individuals better at forecasting future events cannot sell information to the firm, and will actually have to work for the firm. In this setting the firm becomes a nexus of risk-taking activities, where the firm gains economically by combining those risks which outsiders cannot assess and therefore cannot account for. This will have an economic value either if there are real financial linkages or if the markets by institutional or regulatory arrangements are incomplete. Economists have long debated the issue of whether there are any real-financial linkages or not. We will pursue these questions in chapter 6, where we discuss a financial risk measure of the firm, given some real-financial linkage.

Linkages between real activity and financial variables are of interest for the financial officers as the price of money, i. e. the cost of financing, might fluctuate with the real

¹¹ This is actually well known to financial economists, Leland and Pyle (1977) use this argument to explain the debt-equity structure of the firm, as well as the existence of financial intermediation.

activity which may be linked to the income earned by the operative assets. The financial officers will in this kind of setting have to consider not only the cost of financing, but also in what way the market value of the financing varies with the market value of the operative cash flows.

2.2.4 A brief summary

We have argued that the firms are created when there are deviations from the perfect market model. In our view there are three dimensions to this problem. First, what kind of informational problems do we encounter? Second, what kind of real markets do we encounter and third, what kind of risk is the firm absorbing. Very roughly, the different models can be graphically placed into the Perfect/Imperfect Capital Markets, and 'Uncertainty and Risk' space, see Fig. 2.1

Fig. 2.1 Theories of the Firm in the 'market functioning' and 'uncertainty' space

		Type of capital market	
		Imperfect Capital Mrkt.	Perfect Capital Mrkt.
Uncertainty exists		<ul style="list-style-type: none"> •Knight (1921) •Williamson (1975) 	
Only Risk exists		<ul style="list-style-type: none"> •Williamson '88 •Eichner •Augmented Fin. Economics 	<ul style="list-style-type: none"> Arrow & Debrue Fin. Economics (Modigliani & Miller)

The position of traditional financial economics is fairly straightforward. The firm is only interesting as an entity created by its production function, including some kind of economies of scale, scope and/or indivisibilities in production factors. The firm's financial decisions are not of any interest, and risk is handled by the financial markets.

The augmented financial economics firm is created by some minor imperfection in the financial markets like taxes or asymmetric information, but the firm's risk position is in

general transparent and the firm's owners carry the risk in the same manner as in an Arrow & Debrue world.

Williamson can be said to have wandered around in the matrix. Originally, the handling of uncertainty, due to information impactedness, appears to be at the core of Williamson's theory of the firm, but in his recent writing it seems as if it is the incompleteness in contracts, i.e. information problems, that creates firms, not the absorption of uncertainty per se. Maybe we should consider Williamson's theory as a theory stating that the firm's stakeholders can assess the riskiness of the future, but that the most transaction cost-efficient manner to handle the risk is to create a firm, instead of creating state-contingent contracts. We have also placed Eichner in this quadrant, principally because of the imperfect character of the market implicit in the lack of control of the firm's owners. We could not identify any risk absorption characteristics built into the model, and therefore assigned this type of model to the lower left quadrant.

Frank Knight perceived markets as imperfect. Otherwise he would not have made the distinction between risk and uncertainty. Nor would he have made the absorption of uncertainty the key point for the firm to exist. This explains his placement in the upper left corner of the matrix. We nevertheless have to remark that this model does not explain why the firm absorbs the risk, not the financial markets. Such explanations still have to be found. Coase's critique that the firms should be able to buy this advice in the market is valid as long as no further assumptions are made.

We have only briefly touched upon these issues, as the problem is not to show in what manner the firm's financial decisions matter, but to discuss the choice of theoretical framework, when no evident foundations seem to exist. We have to choose the foundations to build from, and that, to a

certain extent, is a methodological problem as we have competing approaches.

2.3 The choice of approach

Our problem is twofold. First, we do not know from what theory we should generate our hypotheses, and second, it is not entirely clear that we will be able to generate hypotheses without gathering further empirical information. We lack empirical content for an acceptable theory.

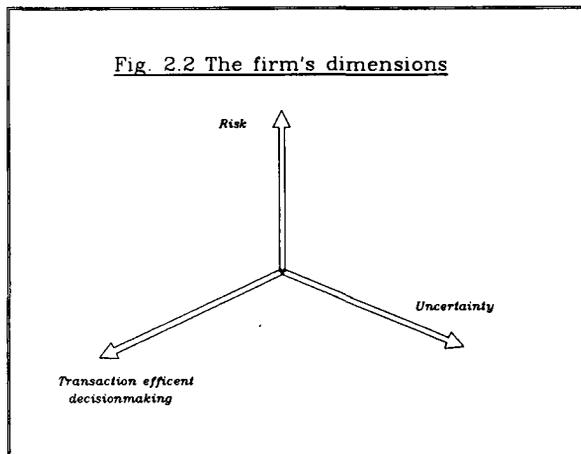
We will discuss which theory of the firm might be regarded as base for our discussion of these issues. That will differ between the organizational issues and those issues relating to external financial activities. These two views are not incompatible, indeed, they serve to emphasize different aspects of the firm, as we show below.

2.3.1 Choice of theoretical base

According to Popper (1945), a theory should be testable in order to be acceptable. Nevertheless, the entire theory does not have to be tested - it suffices to test a subsystem in order to falsify a theory (Popper, 1974, pp 124-125). We would want to add further criteria, basically, 'Occam's razor' and a practical criterium: one of closeness to the problem. When choosing our approach we will look for testability, the number of explanatory elements in the model and 'closeness' to the problem.

We have basically three dimensions of the firm which we perceive as relevant when we study the way the firm organizes the firm's treasury: First, Williamson's hierarcical decision-making within a firm. Second, the dimension of risk, in an Arrow and Debrue sense, where the outcomes of states are known to the treasury, and finally, the uncertainty handling of the firm, i.e. one of the dimensions of the firm which Knight considered essential to a

firm's profitability. This gives us the dimensions depicted in Fig. 2.2. It should be noted that these three dimensions all emanate from Frank Knight's work. Williamson's approach was based upon Coase's discussion of the theory of the firm, which was at odds with Knight's work. Arrow and Debrue did away with uncertainty, thereby enabling them to model pricing in markets in a state-contingent framework. Finally, we are left with Knight's original thought that the handling of uncertainty will matter to the profitability of the firm. We will elaborate on this later.



We will use this as an analytical tool, when studying the organization of firm's treasury departments. It is not a model and it makes no predictions. It is, in our view, a helpful way to discuss the problems of the treasury's organization.

For the external financial activities we will not use Williamson's (1975) approach for two reasons: first, the theory aims more at explaining the internalization of activities within the firm whilst our prime interest is the external activities of the firms as well as the creation of hierarchies within firms. Furthermore, it has the transaction

and not the firms as its principal component of analysis. We are looking for models which can help us discuss the financial decisions of firms and this may be difficult to link with Williamson's line of reasoning.

Second, transaction costs associated with conflict resolution be measurable; the problem arises when we have to decide the level of "information impactedness" across cases with subjective factors such as the level of rationality of involved parties. Evidence of components which are said to lead to information impactedness could be found empirically: uncertainty, small-number exchange relationships, opportunistic behaviour and bounded rationality. The critical problem is the latter. With evidence of all three other factors leading to information impactedness, a market solution could still be observed and explained with the complexity not being so large that it could not be rationally treated. The opposite is also true: internalization could also be the solution to a situation were some of the three first factors are absent. Internalization could still be explained through low rationality of involved parties.

The measurement of limited rationality poses some problems. If the test assumes that everyone is equally bounded in his rationality, the concept threatens to become a pure measurement of transaction costs when empirically tested, and hence be reduced to a test of transaction costs.

Williamson's approach of explaining the firm as nexus of contracts has been extended to the financial structure of the firm. We perceive this to be less fruitful as it still studies the different projects of the firm, and we believe that the notion of either 'full equity' or 'all borrowing' is less convincing. Too many firms could be considered one-project firms, and still have a mix of debt and equity as their financial structure.

Both the traditional neo-classical theory with minor

alterations and theories assuming real-financial linkages, provide us with explanations of why financial activities could be of interest to the firm. Both of them should yield testable explanations as to why firms are active in financial markets given that the theory is correct, i.e., the test will be a so-called joint test of the model and its predictions. Both of them present a theory of why the firm engages in financial activities, but the neo-classical theory presents the simplest explanations.

It is therefore important to state that we consider both explanations for why financial decisions might matter as a possible basis for us when generating our hypotheses, and that we will consider both when later generating hypotheses about the reason for the firm's activity in financial markets.

2.4 The spectrum of financial activities

The starting point of our spectrum of financial activities will be financial services where the agents at no stage in the process own the funds which are funnelled between the lender and the borrower. We call these activities 'pure' financial service. Services characterized by the non-ownership of any financial claims are: advising a client, the underwriting of an issue on best effort basis, payment systems with zero float¹², and brokerage.

In this context, for a financial service activity to qualify as an act of financial intermediation, the 'facilitation of flows' must during at least a part of the process necessitate the holding of the intermediated funds. Financial intermediary activities fitting this description are commercial/retail banking, payment systems with float, the underwriting of issues of securities at a fixed price, and

¹² 'Float' is the time which the organizer of the payment system has the ownership and consequently the right to obtain interest for the money transferred within the system.

securitized credit. It should be noted that there is no time limit for the loans¹³, but when a financial intermediary holds such a loan, it might have turned into an end-investor or a speculator.

Speculation and arbitrage are the last financial activities to be described. The instantaneous purchase and sale of the same asset to two different agents at a profit would constitute arbitrage in its purest form¹⁴. Such a trade would be physically difficult to effectuate, as some time would have to elapse before both deals were concluded. Furthermore, it is doubtful how rigidly one should interpret the wording: 'the same asset'. Are AAA-rated bonds considered to be the same, or do the assets have to be issued by the same firm? Arbitrage, consequently, needs an operational definition, not easily established (see Weisweiler, 1986) for a discussion of different interpretations of arbitrage). Here we can simply put arbitrage among the financial services - in its purest form arbitrage requires no holding of the assets. Speculation, also called trading, is in the intermediary segment of the spectrum. The period of holding could vary, but as every position is reviewed at fairly short intervals, one could say that the time horizon of the trader is fairly short.

The facilitation of the flow of funds is provided both by the arbitrageur and the trader - the former as they support the law of one price and the latter as their activities are necessary for markets to clear. We will turn our attention to the process of financial intermediation.

2.4.1 Financial intermediation: how flows are arranged

¹³ See for instance National Westminster's issue of perpetuities in the mid 80s.

¹⁴ Dybvig and Ross (1987) define arbitrage as an investment strategy that guarantees a positive payoff in some contingency with no possibility of a negative payoff and with no net investment (p.100).

Financial intermediaries can, in general terms, be said to be somewhere between the borrower and the lender. They can perform their task as middlemen, bringing lender and borrower together, or they may act as both lenders and borrowers, keeping the ultimate lenders and borrowers from meeting in the marketplace - the capital and money markets.

The simplest form of flow is the direct loan between a lender and a borrower. A few conditions have to be fulfilled before a direct loan can take place. (1) The borrower and lender have to be aware of each other's existence; (2) the lender has to be able to evaluate the creditworthiness of the borrower and also be able to secure the fulfillment of the borrower's obligations in an acceptable manner; (3) the two parties have to agree upon a price for the loan, the interest rate.

Two alternatives are possible when reducing the search cost: a broker and a marketplace. The marketplace is simply a physical location or a communication network where the prospective borrowers and lenders meet. A broker is somebody who brings the buyers and sellers together - in this context, borrowers and lenders of money. The brokerage function is one of overcoming information barriers, the same as the physical market place. These two ways of organising flows can of course co-exist. Brokers in physical exchanges or in electronic markets are not unheard of.

A trader or an underwriter also brings borrowers and lenders together, but contrary to the broker, he takes possession of the IOUs and hence carries the credit- and market-risk until they are sold to a lender. A precondition for the trade activities is that the IOUs are negotiable, otherwise the trader would be the end-investor. Hence, traders not only bring together the borrower and lenders, i.e. break down the information barrier, but also make an assessment of what price the IOUs of the borrower will command.

This situation is similar to that of an underwriter of a security issue, who promises to sell an issue at a certain price. These activities are dependent upon the IOUs finally finding an end-investor. They need a marketplace, which is not necessarily so for commercial banks. Traditionally, commercial banks place themselves between the ultimate lender and borrower for the entire duration of the loan, and hence take full responsibility for the borrower's fulfillment of his obligations. The difference between this kind of activity and that of a trader is the time horizon during which they hold the asset, and thereby expose their wealth to the price fluctuation of the borrower's IOUs. Traders hold onto their IOUs for a short time, while traditional commercial banks are said to hold onto their IOUs until they mature. Ownership never passes on to the ultimate lender. Instead the commercial bank or retail bank refinance themselves with loans against their assets.

Direct lending, lending through a broker, underwritten issues of securities and bank lending different ways to conduct financial activities. All of the activities enhance the flow of funds between the borrower and the lender. It should be noted that the difference between the different forms is more one of degree than of kind. One further difference might be the two sided nature of the bank, where the parts of the refinancing are based upon demand deposits that at times might pay below market interest rates.

2.4.2 The spectrum of financial activities

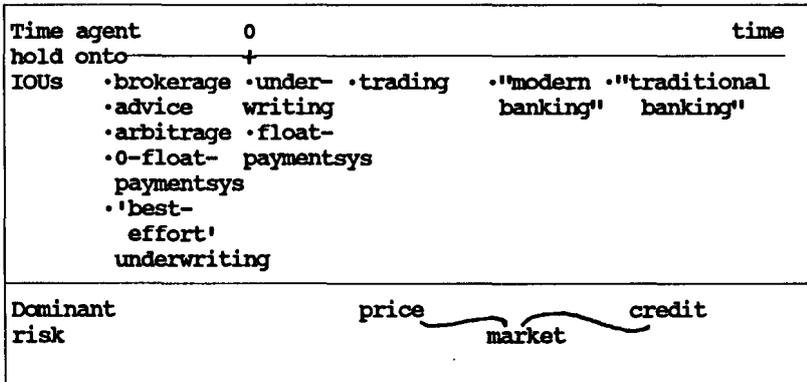
The classification into different types of activities reflects the fact that intermediaries are exposed to different risks depending on how long they hold onto the IOUs¹⁵. See Fig. 2.3.

¹⁵ Deshmuk, Greenbaum and Kanatas (1983b), do not perceive the ownership of the asset as the fundamental difference between the broker and the financial intermediary. They argue that the broker does not perform asset transformation, but is otherwise exposed to the same type of risks as the financial intermediary. We order financial

The key dividing line lies at the origin of the spectrum, where the activity does not require that the firm providing the 'pure' financial service holds the asset. To the left of the line, the activity requires the firm to possess the asset at least for a fraction of a minute in order to facilitate the financial flow between the lender and borrower.

The position of 'modern banking' reflects the situation that banks at times securitize credit, i. e. they sell parts of their loan portfolio to other end investors. The time the bank holds the loan therefore diminishes, from the maturity of the loan to a fraction of it.

Fig. 2.3 Spectrum of financial activities



The credit risk, i.e. the risk that the borrower does not honour his obligations in a timely manner, dominates traditional banks' intermediation activities. The price risk, i.e. the risk that the price of money will fluctuate, is not so much a concern for traditional banks, unless they perform asset transforming activities (see sub-section 2.5.3 below).

activities in accordance with the length of holding the asset, thereby capturing the credit as well as price risk of the paper, making the distinction that the credit risk is import for the financial firm. In our view, the authors, by not treating default risk of the client, lose sight of one important dimension of financial intermediaries' activities.

For traders, on the other hand, price risk is dominant. They make money by taking positions in the market. They buy and sell money without having it yet. If the market considers the IOUs to be of a certain creditworthiness, it is unlikely that this assessment will change during the fairly short period of time during which the trader holds on to the paper. Nevertheless, this risk is larger than the risk facing the underwriter, who often does not hold onto the IOUs for which he has guaranteed the price for more than a couple of minutes.

In a sense, these risks fall under the category we could call market risk: the risk that the price of a specific borrower's IOUs will change, either through a shift in the yield curve or a change in the market's assessment of the creditworthiness of a particular issuer's IOUs.

'Pure' financial service refers here to performing any activity at the origin of the spectrum of financial activities. Financial intermediation, on the other hand, is any activity found to the left of the origin of the spectrum. The issue remains as to why such a financial intermediary might fulfill an economic function. This question will be dealt with in the following section.

2.5 The theory of financial intermediation

As discussed above, financial intermediation and financial activities must be based upon some deviation from the concept of a perfect market. We will refrain from historic explanations, which identify economic reasons for the existence of financial intermediaries, something historians generally renounce. As indicated in section 1.5.1, we will not study the theory of banks per se. The handling of a nation's payment system and the acceptance of marginal banking with the backing of a lender of last resort only exists because it is sanctioned by the government. Such

explanations will not help us when searching for economic motives for financial intermediation, but microeconomic functions of banks might give indications on what activities could be profitable for financial intermediation performed by banks.

Microeconomics has the single agent as its prime study object and does not take any institutional arrangements for granted, as do historical and most macroeconomic explanations. Such a scope is most likely to give insights into the *raison d'etre* of financial intermediaries.

Theories of banking have mostly been what Diamond and Dybvig (1986) term management-oriented and have taken the existence of regulations, for example, as the starting point when calculating the optimal behavior of a bank. Macroeconomic theory has either taken banks' behavior for granted or tried to calculate their reaction functions to changes in liquidity quotas and other regulations imposed upon banks. Optimization theory for banks has also taken at least a spread between lending and borrowing rates for granted, without going on to explain the economics behind the existence of such a spread. Gurley and Shaw (1960) simply perceive the existence of banks as being based upon regulation and the resulting segmentation of financial markets. Such regulations would result in possibilities of arbitrage between different markets and customer segments.

In recent microeconomic literature, attempts have been made to explain why financial intermediaries exist. We have found four literature surveys: Pyle (1972), Baltensberger (1980), Santomero's seminal article (1984), and portions of Diamond and Dybvig (1986). Pyle's paper is more concerned with positive models of regulated bank behavior, which presumably fairly reflects the state-of-the-arts in the early 1970s. In his suggestions for further research, Pyle considers the problem of endogenizing the existence of financial intermediaries into a capital market, and proposes

transaction cost and information cost as the only way to do so (pp. 2025-26). Consequent literature seems to have followed this suggested line.

A financial intermediary has assets, which are loans granted to other agents, and liabilities, which consists of money borrowed from other agents. The financial intermediary performs services both to the lenders and the borrowers/depositors. Additionally, a financial intermediary might structure the financial characteristics of its assets and liabilities in a different manner. This transforms borrowed money into something else, which is also lent. Such activities are called asset transformation or 'the two-sided nature of banking' by Santomero (1984).

We will discuss all three of these functions, starting with what Diamond and Dybvig (1986) call 'asset service'. In sub-section 2.5.2 we briefly discuss the liability side, or the liability services performed by some financial intermediaries. In sub-section 2.5.3 the difficult issue of the two-sided nature of financial intermediation will be touched on, and the section will be concluded with a discussion of what we consider to be the prime motivator of different types of financial intermediary activities.

2.5.1 Asset service

A perfect market is informationally efficient, where information would not play any role: all agents have full information about all relevant characteristics of financial assets and of projects that need external financing.

Studies of the financial markets indicate that they price their issues as if the market prices incorporate all publicly available information, i.e. that no money could be made by trading on public information, but also that information not made public does not seem to be fully incorporated in securities' prices. (Elton and Gruber (1984, p 386ff). Grossman and Stiglitz (1976) have analytically modelled

markets where information has a value and where markets therefore tend to have both informed and uninformed agents that trade in a security, the latter producing information about the securities' risk characteristics. From our perspective this is important, as it shows that even in the securities market information seems to be needed and produced.

Financial intermediaries can be seen as information producers, and several authors have modelled the existence of financial intermediaries on the basis of their being information producers. The interesting point is why financial intermediaries have to hold the assets themselves. Why do they not produce information and sell it to people who want to know the risk characteristics of potential borrowers' projects? In terms of the previous section, why do we not observe only 'pure financial service' agents offering advice as to which projects merit our investment?

Some older explanations are connected with transaction cost, or more accurately with indivisibility of instruments in the securities markets in combination with wealth restraints among investors. More recently, two promising explanations have been brought forward to model the existence of financial intermediaries from the asset side. The first is based upon 'information asymmetry' in combination with 'adverse selection' of the information producer and the second is a question of monitoring the borrower's repayment of his loans in a cost efficient manner.

2.5.1.1 Portfolio function and indivisibility of securities

One of the first microeconomic models of the reasons for a spread between the lending and borrowing rate has its origin in the indivisibility of financial assets. These issues were raised in a microeconomic context by Klein (1973), who makes the point that financial intermediaries break up large financial assets into smaller units, thereby enabling agents with relatively small amounts to invest, and to gain access

to financial assets otherwise not available to them. This constitutes his 'division function' of financial intermediaries. Furthermore, the financial assets can be pooled together with an ensuing diversification of risk. This is something investors with small amounts to invest cannot accomplish for themselves.

In a mean variance framework, firms needing financing will turn to financial intermediaries when the indivisibilities in the financial markets prohibit a large segment of investors from reaching the efficient frontier. They are therefore prepared to earn less than the 'market' interest rates. The margin between what the firm would be paying in the market and what small investors require to be paid will constitute the foundation for financial intermediaries.

Klein sees the existence of financial intermediaries as linked to fairly trivial problems of the amounts in which securities are issued. Although this would explain why some categories of investors would need a financial intermediary, it does not explain why many fairly wealthy individuals use financial intermediators. More novel attempts to model the existence of financial intermediation have taken information and associated problems as the departure point of their analysis.

2.5.1.2 'Information asymmetry and adverse selection'

Since Akerlof's (1970) seminal paper on the asymmetry of information between a seller and purchaser of a used car, microeconomists have incorporated into their models the notion of the uneven distribution of information among different agents. Akerlof observed that used cars, from the minute they were driven from the car dealer's premises lost a great deal in value. He explained this phenomenon with the owner's superior information. If the owner of the car notices that there are quite a few problems with the car, he might draw the conclusion that the car is a 'lemon' and that he would be better off selling the car. A presumptive buyer of

the car would of course know that the car owner is in a better position to judge the quality of the car and would only be willing to purchase the car if offered a rebate compensating him for the risk of the car being a 'lemon'.

A prospective investment project shows similiar characteristics, as the prospective investors do not know whether the project is 'good' or 'bad'. Leland and Pyle (1977) make the point that in order to signal that a project is 'good', the entrepreneur must invest in the project himself, otherwise nobody would be willing to lend him any money. In other words, the entrepreneur could be a swindler and would have no economic incentive to reveal the true riskiness of this project (the 'adverse selection problem'). This explains the necessity of equity when financing a venture with debt.

Leland and Pyle also state that a financial intermediary would have to invest money in the projects it endorses. Otherwise no one would trust the diligence of its credit analysis. This follows from the inability of purchasers of the information to see the amount and quality of resources put into the evaluation of the project. Investors need a signal of the sincerity of the information producer. Therefore, the investors would require that information producers take an equity stake in those investments they endorse.

It should be noted that credit evaluation of financial intermediaries has been used by Campbell (1979) to explain the existence of financial intermediaries, but with a totally different inherent logic. For Campbell, bank financing of new projects is preferable to financing in the capital markets because managers who know of investment opportunities with an expected above economic return want this information to be kept away from the financial markets. Campbell argues that if the investment opportunity can be financed without revealing the 'above economic rent' character of the project, the entire rent can be transferred to the present equity holders,

given that the lender is prevented from purchasing equity from uninformed equity holders. Most commercial banks, which are not allowed to purchase shares, would be able to do this as long as they treat the loan applications confidentially¹⁶.

Nevertheless, the entire structure of the model is based upon the existence, ex ante, of debt and equity, which is not explained within the context of the model. In our opinion, it is likely that Campbell's mechanism could have an influence on the choice of projects to finance. To a certain extent it might also explain existence of bank lending, but it cannot be said to be the prime explanation for financial intermediation; too many private individuals are without different financial claim holders are offered bank loans. A model of financial intermediaries should in our opinion be more general than Campbell's.

A further question related to the information argument is whether the supply of lendable capital is sufficient or not. Campbell and Kracaw (1980) argue that the quality of credit evaluation will depend upon the wealth of prospective credit evaluators, i.e., that credit evaluation will be dependent upon the wealth distribution among agents. Consequently, an economy will only by chance be at its credit evaluation production frontier. Against this argument the usual dynamic argument could be brought forward: a superior producer of information will be successful period after period, accumulating more and more capital. Nevertheless, there is a theoretical possibility that insufficient equity supports the lending activity, and that credit in part is therefore

¹⁶ Myers (1984) introduces a 'pecking order principle' for the choice of debt and equity which is driven by a similiar reasoning about the information contained in the choice between debt and equity, but he does not include bank lending with confidentiality as a possible way to finance the firm.

rationed or allocated inoptimally¹⁷.

It is evident that the notion of credit evaluation and signalling is important for the existence of financial intermediation. The evaluation of credit requires the knowledge as well as the trustworthiness of the evaluator. As long as reputation is not considered an economic good, only capital can be used to signal the necessary trustworthiness.

A further problem associated with potentially dishonest borrowers in combination with asymmetric information could explain the existence of financial intermediation: the problem of monitoring the borrower once he has attained the loan.

2.5.1.3 Monitoring the borrower

Diamond (1984) develops a model of financial intermediation where the key activity of the intermediary is the monitoring of the outcome of borrowers' (entrepreneurs') projects. This time the model's dynamics are driven by 'moral hazard'. The entrepreneur has sole knowledge of the final outcome of the project. He can default on the loan or parts of it, pretending that the venture in which he invested had a lower return than the actual outcome. In Diamond's model, the financial intermediary has a 'net cost advantage relative to direct lending and borrowing'. His is basically a transaction cost argument, where the financial intermediary is likely to

¹⁷ Stiglitz and Weiss (1981) have shown how the supply curve of credit beyond some point is backward bent over the interest rate the entrepreneur is prepared to pay. The higher the interest rate, the likelier it is that the entrepreneur has no intention of repaying the debt. Consequently, some highly risky but economically justifiable investments will not be funded due to an inability of financial institutions to separate the 'good' and the 'bad' projects from each other. To us, this is plausible, but the existence of financial institutions must then be based upon another economic foundation than the evaluation of credit. In the Stiglitz and Weiss setting, any market could perform the credit screening as all information seems to be incorporated in the interest rate the prospective borrower is prepared to pay.

repay its loan from the ultimate lenders, due to a costly incentive scheme.

Diamond creates an incentive structure for the intermediary to repay his depositors that is more cost efficient than direct market lending. He uses an elaborate set of assumptions for this: (1) information is private and monitoring has to be done by every single lender for every single project, (2) individual lenders' wealth is too small to fund a single project and consequently too small to attain diversification effects, and (3) there is a 'dead weight' cost for the intermediary not to repay the loan, that through diversification can be diminished to zero. This dead weight cost is a 'non-pecuniary penalty' which is necessary as entrepreneurs have no wealth. It might be termed a 'Shylock-cost': a pound of flesh or loss of reputation.

The important feature of monitoring seems to be the ex ante character of the model - financial intermediation arises when the cost advantage of monitoring collectively overrides the cost of creating an incentive contract for the financial intermediary to repay its depositors. After financing a certain finite number of projects, the financial intermediary has a net cost advantage compared to direct lending and borrowing. This cost advantage is the result of the pooling together of several financial contracts into a large pot in combination with a contract which gives the financial intermediary an incentive to honour the debt in order to attract depositors. If there are enough projects, if every investor must monitor the project they invest in and if investors themselves cannot diversify over several projects, the disadvantage of using an incentive contract will be less than the cost of the duplicated monitoring.

The model can be criticized on several points. To begin with, there is no limit to the size of the financial intermediary. If the mechanism used in this model were the only explanation of financial intermediation, the optimal numbers of financial

intermediaries would be one, that is, one megabank¹⁸.

It should also be noted that this model not only rests upon a deviation of the perfect information assumption of the perfect market hypothesis, but also upon the assumption of equal access of firms and individuals to the markets. The latter assumption is violated by restrictions upon individuals' ability to diversify their wealth themselves. This kind of argument, though, is not only based on the intermediary offering ways to overcome the problems with information asymmetry and moral hazard, but also with problems associated with indivisibilities of financial assets, as in Klein's (1973) model.

Furthermore, the non-pecuniary bankruptcy penalty needs an economic interpretation, which is not given.

2.5.2 Liability services

Agents need a store of money, that was the origin of marginal banking. Gold merchants in Amsterdam stored gold for those who did not want to store their gold at home. Since it was unlikely that all gold be demanded at the same time, the merchants soon realized that some gold could be left out of the safe lent to others - the origin of marginal banking. Out of this historic example, we can draw one conclusion - that financial intermediaries may offer their depositors a safe storage of money. But intermediaries also offer payment services where the spread between deposit interest rate and the intermediary's lending rate is motivated by the payment service offered in connection with the deposit.

These activities are typically conducted by institutions that we call 'banks'. Benston and Smith (1977) claim that the essential function of banks is merely to supply 'units of generalized purchasing power that can be converted into goods or services at minimal transaction costs in the amounts and

¹⁸ This was pointed out to me by Gregory Udell.

at the times demanded' (p.219). This transaction cost argument is also the argument supported by Baltensberger (1984). Benston and Smith perceive three factors as the cause of the cost advantage of banks in organizing the flow of payment: (1) economies of scale, (2) lower search cost when finding the end borrower and the lender, and (3) lower information cost due to reputation and discretion.

To us, the first and third arguments do not explain why a financial intermediary must hold the assets in between the lender and the borrower. Scale economies could be utilised by providers of financial services. Moreover, the existence of scale economies in banking is questionable (Benston, Humphrey and Hanweck (1985)). The 'reputation and discretion' argument is dynamic. Anyone could attain a reputation as a banker, but the first to enter this field can probably easily build an advantage vis-à-vis later entrants into the market. The economics behind the second argument have not been clarified. At best, they point to the informational problems connected with lending money to risky projects with asymmetric information.

All in all, we do not see any particular advantage for those financial intermediaries which call themselves banks, when they perform 'storage of money'- and 'payment' services, except when they are backed by a Central Bank, which enables the banks to keep only marginal amounts of cash, knowing that the lender of last resort is more or less forced to help them in case of a run on the bank. (Diamond and Dybvig, (1983)).

There is a further economic function performed by some financial intermediators. They structure their assets and liabilities in different ways, in such a manner that they are exposed not only to credit risk, but also to price risk of money. This risk-taking activity is here called the 'two-sided nature of financial intermediation'.

2.5.3 The two-sided nature of financial intermediation

When the Amsterdam gold merchants lent their depositors' gold to others, they took money which they had to repay on demand and converted it into loans which they could not demand immediate repayment of. Consequently, their asset side had a different repayment structure compared to that of the liability side. The merchants mismatched their loans, exposing themselves to liquidity risk.

The liquidity risk could be created by mismatching assets and liabilities' maturities. This means that the financial intermediary takes upon itself the risk of not being able to pay all its claimholders at each point in time. This risk can even result in the bankruptcy of a bank, which would have sufficient assets to pay its claimholders if the assets were liquidated in an orderly manner (for a further discussion see Diamond and Dybvig, 1983).

Bankers, (see Ekman, 1985, p. 84) perceive four risks in banking: credit risk, liquidity risk, interest rate risk and exchange rate risk (called 'numeraire risk' by Deshmuck, Greenbaum and Kanatas, 1983a)). Of these, the credit-risk (i.e. the risk that financial intermediaries may not get timely repayment of their loans) and the liquidity risk are somewhat interlinked. The liquidity risk either arises if the bank is carrying a totally matched asset and liability side and the borrower cannot repay, or it arises when banks mismatch their maturity in such a manner that their loans to customers have a longer maturity than their own debt. The latter effect is a natural consequence of marginal reserve banking.

There are, as we see it, two problems associated with transformation-related profits. First, why do they exist in the first place, and second, why could this transformation of financial assets not be achieved in the securities market? The existence of speculative profits either requires that some agents have a generally better ability to predict the future development of financial variables, or that there

exists a risk premium for certain positions, such as for carrying interest rate risk.

For traders with a superior ability to predict the value of financial variables there is no a priori reason to organize themselves in the form of a bank.

If, on the other hand, profits can be attained by borrowing short term money, then there might exist a reason for intermediaries to do so, especially as their payment services and the Central Bank support of marginal banking activity should enable them to fund themselves more cheaply than nonbanks. This can be done, for example, by accepting demand deposits and lending them long, i. e. a risk premium exists for long term money,

Two early microeconomic models try to model financial intermediaries from this point of view - Klein (1971) and Pyle (1971). Klein can be said to represent the traditional school of thought, while Pyle could be said to be more of the portfolio theory thinking Pyle himself is a proponent of. (Pyle, 1972).

Klein's model is connected more to the traditional view of 'banking theory', but the author makes the point that the decision of accepting a deposit depends not only on the interest paid on the deposit, but also on the return which could be made by lending the money. The borrower in Klein's setting is the government, which offers risk-free assets. The question then centres on what the intermediaries' demand function for deposits is, given the existence of two types of deposits; time- and demand-deposits. This is a traditional portfolio problem, but with a linear utility function¹⁹, where the bounds of the deposit-taking activities will be the return of government bonds as well as the cost of attracting and handling the depositors' accounts.

¹⁹ Implying a risk neutral intermediary.

For Klein, it is evident from empirical material that the demand deposit accounts are cheaper for the banks than the time deposit accounts, in the sense that the former do not carry costs²⁰ which are equal to the cost of the time deposit accounts (interest paid and transaction costs). We see here that one possible reason for the bank to exist would be that through regulation or monopoly power they are in a better situation to refinance themselves.

Pyle's model is basically a portfolio model under uncertainty with a financial intermediary (bank) that has a choice between two assets, the risk-free asset, and a risky loan and a liability, demand deposits. Pyle studies under what conditions the financial intermediary, given the expected return on the loans and demand deposits, will lend money and accept demand deposits. The optimization problem is structured as a portfolio problem with the financial intermediary having a concave utility function. This implies that the financial intermediary has a risk-averse disposition. Pyle finds that a firm will accept demand deposits (in portfolio terminology: to short demand deposits). In the case of stochastic interdependence between asset and liability yields, there has to be a positive risk premium for loans and a negative risk premium on deposits for the intermediary to be willing to 'short demand deposits' and to be 'long in loans'. In a sense, Pyle states that there has to be a positive margin between lending and borrowing in order for the intermedator to be able to take positions.

A positive correlation between assets and liabilities would

²⁰ It should be noted that the empirical studies were conducted when Regulation Q was still in force in the U.S.A., a regulation preventing banks from paying interest upon demand deposits. Klein argues that, in spite of regulations, banks in a competitive market would have increased the services offered demand deposit holders to such an extent that the cost of demand deposits would have equaled the cost of time deposits. That this was not true for average cost, he ascribed to the existence of local oligopolies.

in certain situations enable the firm to pay positive risk premiums for demand deposits. The firm will engage in financial intermediation, given that any positive risk premium on the expected deposit yield is smaller than the positive effect on the portfolio's overall risk due to the positive correlation between asset and liability yield.

Pyle's model has been criticized by other authors. Baltensberger (1984), argues that the model is critically dependent on the assumption of risk-aversion. If intermediaries were risk-neutral, financial intermediaries would exploit the difference between the lending and borrowing rate until it disappeared. Consequently, financial intermediaries have to be risk-averse agents in order for the optimal size of an intermediary to be bound.

Another and more intricate problem is that the difference between the lending and borrowing rates are exogeneous. Baltensberger also points out that since the risk arbitrage between the lending and borrowing interest rate could be done by any agent, there is no need for a special financial intermediary to perform it. The question is why anybody would involve a bank when they perform arbitrage between the 'cheap' government papers and market lending rate. The central question, as to why there exists a margin between the lending and borrowing rate which only can be absorbed by a financial intermediary, remains unresolved in Pyle's model²¹.

Consequently, it seems as if the basis for the existence of "the two sided nature" of the bank is either highly dependent on preferential treatment of banks, i.e., that they would be the only ones to have access to cheap government money or government backing making their funding cheap, or it has to do with risk absorption in an economy where risk is absorbed by some agents.

²¹ Santomero (1984) makes a similiar remark about Pyle's model.

Baltensberger further criticizes Pyle for not incorporating resource, liquidity and insolvency cost into the model. He argues that one of the major tasks of any theory of the firm must be to explain how the firm combines resources of various kinds in order to generate net yields and profit streams. This, according to Baltensberger, requires going beyond a pure traditional portfolio approach, a view to which we adhere to.

Deshmuk, Greenbaum and Kanatas (1983a, 1983b) have tried to use different sorts of dynamic modelling in order to model the two-sided nature of the banking firm. Their models have either (1983a) treated the financial intermediary as a lender borrowing money in advance without knowing at what rate it can lend it, or as facing risky loans and a random demand for loans. No information problem exists, the rationale for the existence of financial intermediaries is unclear, and the lending rate must in expectation be higher than the borrowing rate for a risk-neutral intermediary to engage in this kind of activity. The authors, in our opinion implicitly assume a yield curve which would normally be upward sloping.

O'Hara (1983) also uses dynamic modelling for her description of a banking firm, although she lets the bank manager make the bank's portfolio decisions on the basis of maximizing his own utility function. Her model is realistic, but still does not explain the *raison d'etre* of financial intermediation. The bonding of size is given by the risk aversion of the manager, and the choice is one of choosing the optimal portfolio of loans given that loan applications with different return characteristics are turned in stochastically. Still the problem of an upper size of the bank is only solved by introducing a new problem -that of the agency.

No good explanation has so far been put forward which explains the 'two-sided nature' of financial intermediation. Nevertheless, Santomero (1986, p. 602) considers the two-sided nature of banking to be an important strain to follow,

on which to model the 'banking firm'. It promises to give insights into why financial intermediaries exist—particularly banks. To us it constitutes a challenge, as a model explaining why the conversion of short term maturity demand deposits could be transformed into profitable long term maturity loans has not been derived formally. The credit enhancement function of commercial banks is integrated into the dynamic models, but why it is profitable is not explained within the context of these models.

2.5.4 Summary of literature review

It is evident from the previous review that it is difficult to find a single economic rationale behind the existence of financial intermediaries. We have seen several economic functions used as the base for models of financial intermediaries. Few of them have, to our knowledge, been tested empirically. For some of them, an empirical test would seem difficult to construct. This leads us to use our own judgement when discussing which of the possible reasons seem most plausible as the *raison d'être* of financial intermediation. We are inclined to accept the informational asymmetry arguments, which give a good reason for financial intermediaries taking loans on their own balance sheets. The need to analyze the trustworthiness and soundness of a potential borrower is evident, but Leland and Pyle, Campbell and others have shown that the adverse selection problem has an effect upon the configuration of the flow between borrowers and lenders.

Diamond's monitoring argument also seems plausible to a certain extent, but it appears to be the same problem of restricted wealth which Klein's (1973) model deals with. The monitoring might be a necessary function for any lender, for instance when a 'moral hazard'-problem arises, but the need for a financial intermediary only exists for small time depositors of money, not for all actors in the financial markets. We are, therefore, inclined to rank the monitoring argument together with Klein's argument of indivisible

financial assets, as an activity which could be performed by financial intermediators, but one that could also be performed by a pure financial service agent, e.g. life insurance companies or rating agencies.

The payment systems and safekeeping of money could also be performed by others if there were no some synergies between these and lending activities. In Klein's world, marginal banking activities seem to be founded upon two facts. First, banks can predict fairly well the demand for money and are therefore able to lend some of the demand deposits for longer periods for commerical or industrial uses. Second, if a run against a bank occurred, the Central Bank would support it as long as it believed that the bank was solid and that the run could spill over to the rest of the financial system. The banks might perform this kind of credit enhancement because the interest rate paid on the short end in expectation is smaller than the interest rate paid for long term loans. Such a difference might then be the consequence of a risk premium for taking on risk that the price of money might change. This would be an explanation in line with the main argument in Pyle's model.

Furthermore, transaction cost arguments have so far been are replete with promise but lacking in explanatory power. Where do we find the transaction cost advantages of financial intermediaries? The question boils down to the same one we put forth in the beginning of this section: what is the economic rationale for financial intermediaries? We are inclined to think that the transaction cost argument might explain what we, in section 2.4, have called financial services: there the question is one more of cost advantage and knowhow.

Empirical studies of scale economies in banking seem to repudiate this as a source for cost advantage, and the other arguments brought forward by Benston and Smith do not seem to clarify the issue further.

As Gurley and Shaw showed, regulations which separate markets are one possible explanation, which would make the financial intermediary an arbitrageur, not one taking a position. We will consider this, but that will require that we have a fairly good understanding of the regulations imposed upon financial intermediators.

All in all, we believe that the rationales for financial intermediation suggested by the financial economics literature are worth persuading. In order for us to study the comparative advantages or disadvantages of producing firms when competing in the financial service industry, we need some kind of grasp of what kind of services this industry provides. We will, consequently, try to use this as a basis for searching for reasons for producing firms to conduct financial intermediary activities.

2.6 Summary and concluding remarks

Initially we discussed the problems associated with the theory of the firm, when we are to study an activity conducted in the financial markets. The question is basically twofold: what is the rationale for a firm and why do the firm's financial decisions matter. These questions were seen as interrelated.

The reason for the existence of firms has to be found in some kind of imperfection in the workings of the markets. There are several different theories of why firms exist, and we have discussed some of these briefly. We were primarily interested in theories which could give insights into why the financial decisions of the firm would matter. Starting with Frank Knight's idea of a firm as something absorbing uncertainty, we found that either the firm existed because of some imperfection in the markets which did not motivate that it absorbed risk, or that there was some imperfection in the markets forcing it to handle risk.

Models of the firms' behavior which separate ownership and control were not deemed promising on the grounds that capital markets, at least today, seem to be able to bond managers to a profit maximization goal.

Williamson's analysis of the firm was considered to be too difficult to pursue empirically and beside the issue we want to study. Furthermore, in his more recent work closer to the issues we want he is too close to 'the augmented financial economics' models to warrant separate treatment.

This discussion will help us later when we try to generate hypotheses for why the non-financial firm might be a better absorber of financial risk (see chapter 6), but the theory of the firm and its financial decision does not explain what is produced in the financial service industry.

In order to describe the activities, we have defined what we call the spectrum of financial activities where we classified financial activities according to how long these require the intermediary to hold the money and instruments intermediated. There are two types of activities: 'pure' financial services where the agent does not have to own the financial asset when intermediating, and financial intermediation where the intermediary, at least for a short while, will require a legal title to the assets he intermediates. Different configurations of the flows of funds between end investors and borrowers were also described.

The microeconomic theory of financial intermediation was then reviewed in order for us to find economic reasons for financial intermediaries having to stake part of their equity in the process of facilitating the flow of funds between the lender and the borrower.

Four main reasons were found to be promising: first, the notion that a potential borrower has better knowledge about

the project which he wants financing and needs no incentives to reveal unfavourable information. This requires a credit analysis of the proposed project. The ultimate lender, though, cannot monitor the amount and quality of work an intermediary allocates to such an analysis. Lenders therefore require the analyst to invest in those projects he endorses. Consequently, the intermediary has to take the loans upon his balance sheet, just as a bank does.

The second promising argument was regulation. Regulations might enable those intermediaries who can circumvent the regulation to earn a profit margin.

A third argument is the ability of banks to use their demand deposits to 'ride the yield curve'. This is based on the knowledge that depositors will not demand their money all at once, and also that a run against the bank is less likely as long as the Central Bank provides it with liquidity if it considers the bank to be solid. The profitability of 'riding the yield curve' will, nevertheless, require that the yield curve in expectation will be upward sloping over the maturity of the loan.

Finally, financial intermediation requires capital which must be 'old' wealth from the agent considering to perform financial intermediary activities. To the extent that these activities require some skill there is no guarantee that capital will be allocated to the most able. New actors might therefore enter the financial service industry, using their capital to enhance credit.

Two less prominent reasons for the existence of financial intermediaries were the ex post monitoring of loans and the indivisibility of securities which makes it very costly, or impossible, for small time investors to lend money directly to the borrower. The 'division function', the 'pooling function' and the 'economizing on monitoring of borrowers' might very well be activities which intermediaries can

perform efficiently, but in our view they are unlikely to be the prime reason for the existence of financial intermediaries. They might still be of importance when we study why non-financial firms perform financial intermediary activities.

In this respect, the following chapter examines the situation in the U.S. This will hopefully provide a better perspective as to why non-financial firms perform financial activities.

CHAPTER 3

Manufacturing and retail Linked Financial Intermediation in the United States

3.1 Introduction

When making a study of the activities of Swedish firms, it becomes easy to attribute the phenomena observed to domestic factors. We have seen in chapter 1 that some of the explanations for the emergence of non-financial firms' financial intermediation in Sweden could be specific to the Swedish setting. As we are interested in finding more general causes behind this phenomenon and as we need some empirical background in order to narrow down our research task we conducted a pre study on secondary material in the U.S.

In the United States, a large-scale, well-developed capital market with well-developed financial skills, new techniques within the financial intermediation industry frequently emerge. It is therefore worth studying financial intermediation linked to manufacturing and retail firms in the U.S. (For simplicity called M&R-linked financial intermediation)

Andrews (1964) provides a discussion of corporate finance subsidiaries, but more recent studies also exist [Lewellen, 1972; Cleveland 1974 (quoted in Rosenbluhm and Pavel, 1984); Rosenblum and Siegel, 1983; Rosenblum and Pavel, 1984 and

Rosenblum and Siegel, 1983; Rosenblum and Pavel, 1984 and 1985; Pavel and Rosenblum 1985; and Cooper and Fraser, 1986].

We conducted this study in order to see Swedish conditions in a broader context²². But we are aware of explanations which might be specific to the U.S. context. We therefore describe the regulatory framework for financial intermediaries in the U.S. in section 3.2. after which we review the more advanced forms of M&R-linked financial intermediation activities in the U.S., presenting the emergence of captive finance companies²³ in section 3.3.

In this section a general description of the extent of M&R-linked financial intermediation will be given. Three "minicases", describing the activities of advanced companies in this field will be presented. Finally, some suggestions as to what might be the competitive strengths of M&R-linked financial intermediaries will be given.

The sources for this paper are primarily secondary, published data, but also include two interviews with industry analysts. The purpose of the chapter is primarily descriptive although this description later is used when generating hypotheses about possible explanations of Swedish manufacturing linked financial intermediation.

3.2 The regulatory framework

In order to understand the particularities of the U.S. market, we have to touch on the regulatory framework and

²² This study was conducted during a study visit to New York University, Spring 1986, and describes the situation at this point in time. We have included some more recent material that has shed some light on those phenomenons we observed.

²³ Captive finance companies are created by a non-financial firm which sells its receivables to the captive which in turn refinances them in the capital market.

describe the segmentation created by regulation.

3.2.1 Regulatory powers

Banks are, according to the Bank Holding Company Act of 1933, defined as deposit-taking institutions giving commercial and industrial loans. This implies that Savings and Loan Associations (ung. sparbanks) are not considered to be banks as they cannot accept deposits.

Financial intermediaries in the U.S. are subject to the legislative power of two levels of law-making bodies. The states have the primary responsibility for banks, and they charter and regulate the banks operating within their territory. The federal government can also charter banks, give them a national charter, but cannot, as we understand it, force any state to accept the activities of federally chartered banks within their territory.

Different banks are regulated by different bodies. These are: the Controller of the Currency, the Federal Reserve System and FDIC (Federal Depositary Insurance Company).

3.2.2 Restrictions on the product scope offered

After the financial collapse in 1929, criticism was voiced against banks' involvement in securities trading, and in 1933 the so-called Glass-Steagel Act separating commercial and investment banking, passed Congress. It prohibits commercial banks from underwriting corporate and unguaranteed government revenue bonds, from underwriting corporate equity, or holding any shares in non-bank related companies. It also prohibits investment banks from undertaking commercial banking business including the participation in deposit-taking business.

Merril Lynch, among others, has challenged this restriction and circumvented its provision of not taking deposits by creating Mutual Money Market Funds (MMMFs). They have several of the features of demand deposits, but legally are claims on an underlying portfolio of money market instruments which are

uninsured.

This means that the depositor's holdings are worth what his share of the underlying portfolio is worth. The safety of these deposits does not correspond to that of deposits in a bank. Demand deposits have bank equity and reserves to back their value and are furthermore insured up to USD 100,000 per customer at the FDIC. Commercial banks want a revision of the Glass-Steagall Act, and claim that the Act creates a protected, highly concentrated market that is very profitable. (J.P. Morgan & Co, 1984).

Investment banks, on the other hand, claim that there is a risk of misrepresentation of client interest if commercial banks are allowed to conduct both commercial and investment banking activities simultaneously. They also claim that permitting commercial banks to underwrite commercial bonds would hamper innovation in the financial markets. (Salomon Brothers Inc., 1985). In addition, Salomon Brothers state "that competition within the security industry is also intense and pervasive" (op cit, p. 12). This statement is, in this context, largely unsubstantiated. There seems to be some evidence to point to above economic rents being paid within the security industry, at least before the introduction of "on shelf registration". The banking industry, nevertheless, is restricted in the product scope it can offer its customers.

3.2.3 Price restrictions

Yet another restriction placed upon the U.S. commercial banks was the so called Regulation Q, which forbade demand deposit takers to pay any interest on transaction accounts. Through the passing of the Depository Institutions Deregulation and Monetary Control Act in 1980, this restriction has gradually been phased out, and in April 1986 commercial banks had no restrictions imposed upon them as regards interest rates paid on demand deposits. The regulation was de facto abandoned when commercial banks were allowed to offer Money Market

Deposit Accounts which mimic MMMFs. Until this opportunity was given to the bank's customers, a restriction on the bid-price of demand deposits had been placed on U.S. commercial banks.

3.2.4 Restrictions on geographical scope

Previously, state laws prevented out-of-state banks from setting up in their own states. Rhoades (1985, p.6) claims that:

"Concern over interstate banking's effect on the concentration of banking resources on the national level arises from this country's long-held aversion to concentration of power of any kind".

The McFadden Act is the federal law preventing interstate branch banking, and the "1956 Douglas Amendment to the Bank Holding Company Act" prevents bank holding companies from owning banks in different states. Nevertheless, some states recently closed interstate agreements which allow out-of-state banks from to operate within their state. Other states unilaterally opened up their territory to out-of state banks.

As of December 1984, 22 states had permitted some form of out-of-state banking, (op cit, p.12). The selective character of these laws, primarily excluding the banks in the North East and in California from entering the states, was challenged in the courts. In early 1986 the Supreme Court ruled that it was a state prerogative to decide according to state of origin which banks were to be given charters.

The Douglas Amendment was circumvented by some individuals personally controlling banks operating in several states, and finally a holding company operating in several states before the amendment was created had its operations "grandfathered", and was allowed to continue its business.

Non-bank banks, entities either taking deposits but not giving commercial and industrial loans or vice versa, circumvent the legal definition of banks, and act nationwide.

"These and other ways to do interstate banking related business had in 1982 given rise to more than 5.500 interstate offices ultimately controlled by the parent holding company." (op cit, p.9) It has been argued that the development of telecommunications made it possible to run nationwide retail banking networks, in the same manner as it allows international banks to operate a 24-hour dealing activity by interlinking its global network.

The restrictions on the geographical scope of the banking business have two implications. (1) U.S. banks might not be able to reach the optimal economies of scale, if there is such a thing in banking, attainable in their huge market. (2) Neither can U.S. banks diversify away all industry risk, if they are operating in single industry states. Therefore they may carry some regional unsystematic risk in their portfolios. The interest in opening up interstate non-bank banks seem to indicate that there are perceived economic gains attainable from a national network of branches.

Another restriction is the need for permission to open up a bank. A prerequisite for obtaining permission will be that the applicant can show that it A) will serve a useful function, and B) does not endanger local competitors' operations.

3.2.5 Summary

Summing up, the U.S. banking market is segmented through regulation in

- its product dimension. Commercial banks and investment banks are forbidden to perform the same activities.
- its geographical dimension. Despite some movements towards interstate banking on the regional level, the U.S. market can only be characterized as geographically segmented.
- "de novo"-entry in the form of banks is conditional upon

state or federal authorization.

It can be argued that the pressure exercised by commercial and investment banks to attain access to each others' markets, indicates the attainability of some kind of above economic rent for banks active in both markets. This might be due to economies of joint production of information or other, unidentified, economies of scope (see e.g. Gilligan, Smirlock and Marshall, 1984).

The decreasing cost of communication could make a nationwide retail banking network economically feasible. The positive effects of nationwide banking could stem from positive diversification effects of national lending and borrowing portfolios, carrying less unsystematic risk. Another possibility is economies of scale attainable when operating on a national basis.

It seems safe to conclude that some market participants perceive economic gains from circumventing the regulatory barriers, in order to expand the scope of their businesses (Kane, 1984). It is in this context we have to see the M&R-linked financial intermediation in the U.S.

3.3 M&R-Linked Financial Intermediaries in the U.S.

3.3.1 The emergence of captive finance companies

Andrews (1964) studied the "captive finance companies" excluding those financial firms owned by non-financial firms which are independent from their parents. He defines captive finance companies as firms that are:

Subsidiaries of major retailers or "nonfinancial parent corporations engaged in national or regional marketing (usually national)... Secondly, for inclusion in the sample, the assets of the financial subsidiaries in question must have been composed predominantly of notes receivable" (p. 82)

Andrews found 125 captives at the end of 1961. 14 of these existed before 1945 and the birth of the rest was

concentrated heavily to the period 1954-1957²⁴. Andrews also found that four industry groups were predominant: electrical machinery, non-electric machinery, transportation equipment and, to a lesser degree, the retail trade. The captives seem to have increased their product scope beyond refinancing their notes receivable. Edwards and Thompson (1982, p. 19) state that the manufacturing and/or retailing participants in the financial intermediary service industry have

"[M]ajor reputations, are consumer oriented, are deep into autoloans, home-improvement operations, insurance subsidiaries. They are conveniently located, and above all other competitors they have point of sale networks in position".

Apparently the authors perceive the M&R-linked financial firms as able competitors to the traditional financial intermediaries, especially in the area of consumer financing.

The most comprehensive study of non-financial competitors in the financial intermediation industry, has been conducted by Rosenblum¹ and Siegel (1983), Rosenblum and Pavel (1984 and 1985), and Pavel and Rosenblum (1985). In Rosenblum and Pavel (1985), the authors divide the non-bank competitors into four categories: retailers, industrials, diversified financials and insurance companies. From our standpoint, industrials and retailers are the most interesting groups. For the entire list of companies see Table 3.1.

3.3.2 Retailers

Of the retailers mentioned in the study - Sears, J.C. Penny and Montgomery Ward - we know that at least the first two have provided several financial intermediary services (see

²⁴ An interesting question to pursue would be to what extent the birth of captives was dependent upon the emergence of C.P.-programs. It is clear that CP-programs must have superseded the C.D.:s of the U.S. banking system. These were introduced by New York banks in 1961, (Law and Crum, 1963) which seem to indicate that it was other factors than access to money market which spurred the growth of captives.

Table 3.2).

The retailers' total consumer receivables 1981 amounted to USD 16 billion. In 1983, this figure was USD 23 billion representing a 40% increase in volume which should be compared to the 17% increase all FDIC-insured domestic banks posted over the same period. Here, Rosenblum and Pavel note that the increase of the 15 largest bank holding companies' installment credits outstanding was 35% (op cit, p.46-47). Consequently, it seems that the large banks have been fairly successful in defending their market share against attacks from the retailers. The retailers' consumer finance receivables are mostly credit card receivables, and to get an idea of the extent of the operations it should be mentioned that no bank had more consumer account balances outstanding at year-end 1983 than Sears (op cit, p.47).

Table 3.1. List of 30 non-bank firms and 15 largest bankholding companies ranked by assets.

Bank Holdings Companies	Nonbanks			
	Retailers	Industrials	Diversified Financials	Insurance Companies
Citicorp Bank o Amerika Chase Manhat. Man. Hannover Cont Illinois Chemcial J.P. Morgan First Interst. Security Pac. Bankers Trust First Chicago Wells Fargo Crocker Natio. Marine Midland Mellon National	Sears J.C. Penny Montgomery-Ward	Gen. Motor Ford Motor Chrystler IBM Gen. Electr Westinghouse Borg-Warner Gulf&Western Control Data Greyhound Dana Corp Armco Corp National Inte ITT Corp	Am. Express Merrill Lynch E.F. Hutton Houshold Int Beneficial Avco Corp Loews Corp Transamerica	Prudential Equitable Aetna Am. General The Travell

Source: (Rosenblum and Pavel 1985, p. 5)

Sears is probably the most diversified of the retailers with an interest in consumer financing, trading, insurance, mortgage financing and holding an S/L-association of its own.

It clearly has the stated goal of becoming a "financial supermarket" for the middle class American, and they claim that they will be able to capitalize on their customer base in order to build volume.

Sears has also tried to build up a small scale branch banking network, and when the necessary regulatory approval failed to materialize, they changed strategy and instead of forming a branch network they created Discovery Card. Discovery Card is a combination The idea seems to be that customers with excess cash can deposit money on their Discovery Card account, and earn interest during the period they run a positive balance. Unlike its predecessor, Discovery Card will also be accepted outside the Sears' stores. (Ellis, 1985).

Table 3.2 Financial service offered by selected non-financial companies.

	General Motors	Ford	ITT	General Electric	Control Data	Borg- Warner	Westing- house	Sears	Marcor	J. C. Penney
Commercial finance:										
Commercial lending	1944	1960	1954-5	1965	1968		1961		1966	
Factoring					1968					
A/R and inventory finance	1919	1959	1971	1932	1968	1950	1954			
Venture capital				1970	1971					
Consumer finance:										
Sales finance	1919	1959	1964	1964	1968	1953	1959	1911	1917	1958
Personal finance		1966	1964	1965	1968	1969		1962	1966	1970
Credit card			1983		1983				1957	1958
Real estate:										
Mortgage banking			1983	1981	1982	1982		1972		1970
Residential first mortgages				1981	1982	1982		1961		1981
Residential second mortgages					1979		1969	1961	1966	
Real estate development		1969	1970	1960	1972	1969	1969	1960	1970	1970
Real estate sales & management					1983	1981		1960	1970	1970
Commercial real estate & finance		1980	1980	1983			1969	1961	1966	1970
Insurance:										
Credit life insurance	1975	1962	1964	1973	1968	1970		1960	1966	1970
Regular life insurance		1974	1964	1973	1968			1957	1966	1970
Property & casualty insurance	1925	1959	1964	1970	1968	1970		1931		1970
Accident & health insurance			1964	1973	1968			1958	1968	1967
Leasing:										
Equipment and personal property	1981	1966	1968	1963	1968	1968	1968			
Real property leasing								1960	1970	1970
Lease brokerage		1982	1982					1981		
Investment services:										
Investment management			1986					1969		
Mutual fund sales		1982	1966					1969		1970
Corporate trust & agency										
Custodial services										
Business and personal services:										
Travel services		1978						1961	1971	
Cash management services								1981		
Tax preparation services						1968	1970		1966-70	1969
Financial data processing services			1965				1969			1982
Credit card management services				1965						

Source: Rosenblum and Pavel (1985 p. 4)

According to Rosenblum and Pavel, the retailers are

profitable: "It appears, therefore, that the financial business of retailers has met with success - so far" (op cit, p. 48).

3.3.3 Industrial based firms

Rosenblum and Pavel list fourteen industrial firms as having significant financial operations, but have previously noted that they might have missed some firms which have a low profile. The fourteen firms are listed in Table 3.1.

The first four firms in the table, according to Rosenblum and Pavel, are captive financial subsidiaries of their manufacturer parents, and the following three are captive subsidiaries but have become independent providers of financial service to third party. The others have always been independent of their parents.

3.3.4. Captive transportation based financing firms

The case of the captive financial intermediaries is interesting. As can be seen from Table 3.3, the largest increase in market share of autoloans outstanding was experienced by GMAC.

Table 3.3 Marketshare of auto loans outstanding:

	1978*	1982*	1986**
General Motors	13%	26%	} 35%
Ford Motor Credit	6%	7%	
Chrysler Financial	2%	1%	
Banks	60%	45%	43%
Others	19%	21%	22%

Source: *Pavel and Rosenblum 1985, p. 9

**The Economist 1986 p. 55

In their 1984 study Pavel and Rosenblum state that:

"[A] number of diverse yet concurrent forces accounts for these changes in market share: a decrease in domestic car sales,

liberalized bankruptcy laws, soaring costs of funds, and interest rate volatility. This combination of factors induced the captive finance affiliates of the automanufacturers to offer low cost auto credit, largely as a defensive measure to support their dealer networks" [op cit, pp.16-17].

Banks and finance companies decreased their emphasis on auto lending, abandoning this market to the auto captive finance companies.

Pavel and Rosenblum perceive this shift of emphasis as the result of several events which have proved unfavourable for the traditional automotive financiers: higher credit risk due to liberalized bankruptcy laws, that usury ceilings in some states prevented the financing companies from passing on increased funding costs on the borrowers (see also Vandenbrink, 1984), and above all the problem for the banks and financing companies to immunize their long-term fixed rate auto loans with deposits or funding of similar duration, i.e. for their inability to carry the interest rate risk inherent in long-term fixed rate financing. It should be noted that U.S. car purchases are heavily dependent upon financing, and that by tradition financing is expected to be with fixed rates for relatively long maturities.

More recent figures on the U.S. finance companies controlled by M&R firms are given in Mead and O'Niels's (1986) study of U.S. commercial banks' competitors' performance. The authors claim that the top 100 finance companies held 80 per cent of the industry's net receivables in 1985. Of this:

"34 per cent where held by financing arms of automotive manufacturers, 17 per cent by other subsidiaries engaged primarily in financing a parent's product ("captive finance companies"), 12 per cent by subsidiaries of other non-bank corporations, 20 per cent by subsidiaries of bank holding companies and only 17 per cent by independent firms" (op cit p. 343).

Attributing the group "subsidiaries of other non-bank corporations" to the group M&R-linked financial intermediaries gives a total share for this group of 63 per cent of the top 100 finance companies market share. It seems

quite evident that financial intermediation in M&R-linked financial intermediaries in the U.S. has been growing. What is not so evident is why this is so.

We will now study three "mini-cases" in order to see if we can find any viable hypothesis, which might give an explanation of the occurrence of M&R-linked financial intermediation in the United States.

3.4 General Electric Financial Services Inc.²⁵

3.4.1 Introduction

General Electric Company is one of the largest and most diversified corporations in the world. From the time of its incorporation in 1892, the company has been engaged in developing, manufacturing and marketing a wide variety of products for the generation, transmission, distribution and application of electricity. Over the years, development and application of related and new technologies has considerably broadened the scope of activities of the company and its affiliates.

General Electric's operations are highly decentralized. The basic organization building blocks are units of differing sizes designated as sectors, groups, organizations divisions or departments. These basic management units are aggregated in various ways, with the largest generally being a sector.

The main, consolidated sectors of General Electric Company are (1) consumer products, consisting of ligducts, video and audio products, batteries, mobile communication and KCNC-TV in Denver; (2) major appliances, including both General Electric and Hotpoint brands of kitchen and laundry equipment such as refrigerators, microwave owens, freezers,

²⁵ This section is based upon information contained in General Electric's Annual Reports 81 - 85, K-10 reports from the same firm and time-period, and General Electric Credit Corporation Annual Reports and K-10 for the period 83-85.

dishwashers, clothes washers and dryers, and room air conditioners; (3) the industrial segment which includes factory automation products, semi-conductors, motors, electrical equipment for industrial and commercial constructions, General Electric Supply Company Division and transportation systems; (4) the power system segment which produces and serves products for generation, transmission and distribution of electric energy; (5) aircraft engines; material segment which includes high-performance engineered plastics, silicones, industrial cutting materials, laminates and ceramics; and finally technical products and services with General Electric's aerospace products, medical systems and information service (General Electric Information Service Company).

December 1985 General Electric purchased RCA Corporation.

3.4.2 GE's strategy

A study of the stated strategy of General Electric shows that the present corporate leadership of GE wants to invest the vast financial resources, see Table 3.4, in high growth industries:

"[O]ur major focus is on developing strong positions in the more vital sectors of the world economy: engineered materials, information services, financial services, construction services, medical system and natural resources" (Annual Report 1981, p.3).

"General Electric has set its sights on fast growth in a slow-growth world economy" (op cit, p. 5).

Statements in more recent annual reports emphasis the importance of the core businesses, but also that a large share of the earnings are now being generated in the service related fields. According to Sterngold (1986,a), GE will, after the RCA deal has been completed, generate about 80 per cent of earnings in the service businesses.

3.4.3 GEFS and GECC

General Electric Financial Services Inc. (GEFS) and its two wholly owned subsidiaries, General Electric Credit

Corporation (GECC) and Employers' Reinsurance Corporation (ERS) are not consolidated into General Electric's annual report. The Financial Service Inc. was founded 1984 to create one holding company for GECC, incorporated 1943, and the ERS, acquired 1983. General Electric thereby further stepped up their involvement in the financial intermediation industry.

General Electric Credit Corporation was incorporated in the State of New York in 1943 as an investment company and as a successor to General Electric Contract Corporation, formed in 1932. All outstanding capital stock of the corporation is owned by General Electric Financial Service Inc. Originally, the principal business of GECC was to finance the distribution and sale of consumer and other products of General Electric. Subsequently, however, the type and brand of the products financed and type of credit granted have been significantly diversified, and virtually all products financed are manufactured by companies other than General Electric.

GEFS operates primarily in the finance industry and to a lesser extent in the insurance and the property/casualty insurance industries. GECC's financing activities include time sales, revolving credit and inventory financing for retail merchants, automobile leasing and automobile inventory financing, primarily for imported brands, manufactured housing financing, commercial and industrial loans, commercial and residential real estate financing, and mortgage banking. GECC also offers some insurance related services. As a result of the acquisition of ERS, GECC in the future will concentrate more on providing insurance services for GECC's customers.

General Electric also owns General Electric Venture Capital Corporation and General Electric Real Estate Credit Corporation. Both firms are consolidated.

General Electric also has a finance company abroad, - General

Electric Overseas Capital Corporation, which appears to be a borrowing vehicle. Its borrowings are unconditionally guaranteed by General Electric. No statement about guarantees to GECC is mentioned in the annual report. It is worth noting that Hector (1985) claims that all borrowing is undertaken without any guarantee from GE.

3.4.4 GE:s and GEFS:s financial standing

It could be conjectured that GE's strong balance sheet has helped GECC to attain good credit ratings for its commercial paper program and bond issues. But as we have seen, no formal guarantees appear to have been given by GE for GECC's borrowing.

Table 3.4 G.E.'s capital structure

Per cent of total capital				
Year	1981	1983	1984	1985
Short-term debt	10.2	7.6	7.2	
Long-term debt	9.2	6.8	5.2	12.7
Minority interest	1.4	1.3	0.9	
Share owner's equity	79.2	84.3	86.7	
Total capital (bn. USD)	11.5	13.4	14.5	n.a
Credit rating for bonds (Standard & Poors)	AAA	AAA	AAA	AAA

According to Gordon (1985), GECC's business' volume surged when it went into tax-induced leasing activities in the 70s. Profits have grown on average 32 per cent between 1980-84. GECC's earnings are found in Table 3.5.

GECC draws a large part of its income from leasing activities, and the tax credits created in this way are transferred to General Electric. GE files a tax-income statement where GECC is consolidated, and consequently GE can claim the tax credits originated in the leasing business. For this, GECC is given a compensation from its parent company.

Table 3.5 GECC's performance between 1981 - 1985

Year	1980	1981	1982	1983	1984	1985
Net profit (Millions of \$)	115.0	142.3	204.7	271.0	320.3	377.2
ROE (per cent)	14.1	15.3	19.1	21.2	20.7	24.1
Bond-rating	n a	n a	n a	n a	AAA	AAA

As the tax bill that passed Congress during the summer of 1986 was implemented, the large depreciations made for capital good investments were substantially lowered. It can therefore be argued that the tax-based financial leasing, constituting the single largest business for GECC, will be less profitable. From the comments in the annual reports during the last years, it can be conjectured that GECC has been aware of this threat. GECC changed the focus of their activities and have broadened their product scope during the last years. These changes seem to be a response to the anticipated changes in the tax legislation. This is also supported by Hector (1985) who sees GECC's diversification into other areas as a response to the expected changes in tax legislation.

The last company to be included in the GEFS portfolio so far is Kidder Peabody, the 15th largest U.S. investment bank, ranked according to capital in 1985. The price is said to be MUSD 600 for 80 per cent of the shares [Sterngold (1986a,b,c)]. In the deal Kidder Peabody is said to have gained three things: (1) a larger capital base, (2) they have become the in-house bank to one of the largest issuers of securities in the world, General Electric, and finally (3) they will be exposed to GE Credit's large corporate client base. General Electric on the other hand get access to competence in a highly sophisticated area of financial intermediation, investment banking. According to Robert C. Wright, CEO of GEFS,:

"We are principally in the business of the financing of assets. Kidder, Peabody is in the business of tracking, advising, arranging those transactions. The issue of matching those skills to ours is a critical one for us" (Sterngold, 1986c).

This could be done in several areas. GECC is one of the largest lenders for consumer automobile purchases and for mortgages. It was put forward as a possible area of cooperation between GECC and Kidder, Peabody, where Kidder, Peabody are supposed to secure these assets. Another area where the two firms could work together is the "junk bond"-market. Junk bonds are bonds that are graded to be high-risk, i.e. the risk of (partial) default is high, and they are primarily used to finance takeover activities in the U.S. corporate control market. GECC has financed several leveraged takeovers, and want a market in these junk bonds opened. This could be done by Kidder Peabody's trading ability. (op cit). See Fig. 3. 1 for an illustration.

The refinancing of GECC's activities is primarily done through the corporate finance division of GECC. The capital structure of GECC is found in Table 3.6, together with some financial statistics. It is apparent that GECC is refinancing some of its very long term assets as short term borrowing. The short term notes are also distributed through GECC's own dealer network. Although not explicitly stated, it could be assumed that an amount of trading occurs, this as e.g. in December 31, 1985 GECC owned "cash and short-term investments" and "marketable securities" for MUSD 1.486. GECC is also active in the Euromarkets. It should be noted that GECC does not seem to be an in-house bank of GE, and that GE is active in most markets as a large issuer of securities.

3.4.5 What are GEFS's competitive advantages?

This section will of course be highly speculative, but Gordon (1985) perceives GECC as more than a tax incentive driven financial intermediary. Nevertheless, every year General Electric pays GECC a large amount to compensate it for future income taxes GECC will have to pay, and for which it cannot

use the tax deductions already utilized by GE. If you treat the tax credits as equity, GECC return on equity for 1984, according to Gordon, would be 7 per cent instead of the more impressive 15 per cent reported.

Table 3.6 Financial structure of GECC and some key statistics

Billion USD	1985	1984	1983	1982
Short term assets	20.5	16.8	14.1	11.8
Equipment on oper. leases	1.1	1.0	1.0	0.6
Buildings, equipment and other assets	0.8	0.6	0.6	0.5
Total assets	22.5	18.4	15.7	12.8
Short term notes payable within 1 yr	10.5	8.4	7.4	5.7
Notes payable after 1 yr	4.8	4.0	3.3	3.3
Other liabilities	1.7	1.3	1.1	0.8
Deferred income tax and deferred investment tax credit	3.5	3.0	2.4	1.7
Total equity	1.9	1.6	1.5	1.3
Total liabilities and equity	22.5	18.4	15.7	12.8
Tot liabilities to equity	10.8	10.5	9.5	8.8
Total deferred taxes over tot equity	1.8	1.9	1.6	1.3

In spite of this, Gordon perceives GECC as a strong competitor for several reasons. (1) GECC's strong financial standing, with the highest credit-ratings compared to the rest of the finance companies, (2) the tax-credit advantage is partially passed on to the customers, (3) the good quality and industrial background of their people.

Hector (1985) also mentions the background of the GECC bankers. The parent's intimate knowledge of many modest-sized industries helps the credit evaluators at GECC to assess

credit risk at a lower cost or with less uncertainty than cost of the normal financial intermediaries. Consequently, GECC might be perceived as an informationally more efficient evaluator of commercial loans in middle sized industries of which they have prior knowledge.

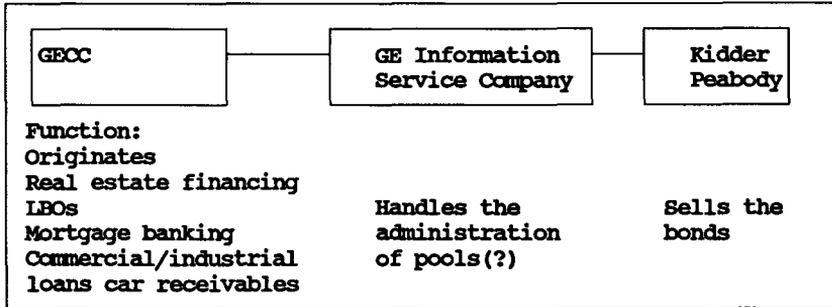
He also points out that GECC cannot undercut the traditional financial intermediaries' interest rates. GECC has no access to a lender of last resort, and must operate with less financial leverage than banks. Consequently, GECC will have to charge a relatively higher spread over its funding costs than banks. It is interesting, though, to note the increased leverage of GECC, if one only takes the equity into account. The funding cost might also be lower than that of the creditors because of the parent's good credit standing, in spite of the lack of formal guarantees backing GECC's funding activities.

It should be noted that Brick, Fung and Subrahmanyam (1987) have shown that taxes are not a sufficient reason for the firm to act as an intermediary between the seller and the buyer when the item is to be leased.

The inclusion of Kidder, Peabody also gives a possibility for GEFS to increase its merchant banking activities, i.e. to help finance deals and also take an equity participation. This is done in leveraged buyout deals, where GEFS financed among other deals the management buyout of the owners in Tiffany.

Previously the company had to hold onto the bonds used in financing the largest part of the deal, but today they can sell these "junk bonds" via Kidder, Peabody. This is also a possibility in other areas, where GEFS is active, see Fig. 3.1 for details.

Fig. 3.1. GEFS business for securities origination



GEFS could, in the same manner as GMAC, be a more superior carrier of interest rate risk. (See section 3.5.3). A further possible synergy between GEFS and GE, is the existence of an in-house information service division at GE, which might help GEFS with the vital telecommunications systems and equipment.

3.4.6 Summary

GEFS seems over time to have covered a larger part of the financial intermediary spectra. Starting as a captive finance company, vi tax-induced financing with third party customers, it has become a fullfledged financing intermediary doing business mainly with customers not related to GE.

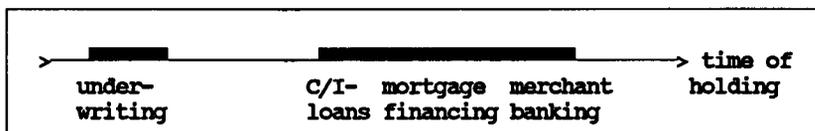
GEFS consists of the financial intermediary GECC and the insurance subsidiary, ERC. GECC is engaged in commercial and industrial financing, distribution sales financing, real estate lending, leasing and leveraged buyout financing. Once the Kidder Peabody group is integrated with the GEFS-structure, investment banking activities and trading will also be included in the scope of GEFS. See Fig. 3.2.

Several factors help explain the competitive strength of GECC:

- Investment Tax Credits. By dividing the investment tax credits of the firm between itself and the client that needs financing, GECC might be able to offer a lower price than the financial sector. Nevertheless, the financial intermediaries could broker such deals, and it is not clear why GECC should

do this themselves. Furthermore, it has been shown that tax reasons are not sufficient to explain the need for an intermediary between the seller and the buyer.

Fig. 3.2 GEFS financial intermediary spectra



•GE's capital. Although GE apparently does not guarantee GEFS's debt, the mere relationship between GE and GEFS could give GECC a better credit standing. But it could be argued that the better credit standing of GEFS will result in a higher likelihood of default of General Electric. See Lewellen (1972).

•GECC could possibly draw upon their deep industry know-how, their credit-assessments either being cheaper or more thorough than the assessments produced by the banking sector.

•GE also has an excellent computer and information processing capacity, a key factor in handling some financial activities.

3.5 General Motors Acceptance Corporation

3.5.1 Introduction²⁶

For a general history of General Motors' development see Chandler (1962). Today, General Motors is the world's largest manufacturer of automobiles, with operations in 39 countries, employing more than 800 thousand people and with revenues of USD 96.4 billion in 1985. In the U.S, GM's total revenue amounts to USD 89.1 billion divided between four business areas: (1) automotive products that account for 94.7 per cent of U.S. revenues, (2) non-automotive products which account for 2.5 per cent of U.S.-revenue, (3) defense, accounting for 1,8 per cent of U.S revenue, (4) computer systems,

²⁶. This section is based upon annual reports of General Motors 1981-1985.

primarily Electronic Data System (EDS) which was bought in 1985 to help modernize the production process of General Motors, and which accounts for 1.0 per cent of total revenue. Furthermore, the foreign operations attract total revenues of USD 26.2 billion, but the firm also has interarea sales and revenues of USD 19.0 billion, which are included in the above data.

GM seems to be an undiversified firm, and has kept itself to its core business, the manufacturing of automobiles. Nevertheless, General Motors owns a finance company, General Motors Acceptance Corporation (GMAC) that, if it was a bank, would be ranked the 5th largest U.S. bank by assets.

General Motors present financial standing is not too impressive. Depressed earnings in the automotive industry in combination with some large acquisitions have strained the company's balance sheet.

3.5.2 GM's stated strategy

GM's present strategy, as it appears from statements made in annual reports (81-85) and reports in the financial press, is to reorganize the company from being a holding company for several autodivisions, into a streamlined, low cost producer of automobiles. In order to do this, GM buys companies to gain competence it does not possess itself. Lotus, the sportscar producer, was acquired in order to provide GM with critical competence in styling and high performance car manufacturing. Electronic Data System, similarly, was acquired to help GM build the efficient information systems needed for implementing a more modern production system. In this context, GMAC has been allowed to grow by acquisition.

3.5.3 General Motors Acceptance Corporation

General Motors needed a vehicle to finance its dealers, and founded General Motors Acceptance Corporation (GMAC) in 1919, a fully-owned subsidiary of General Motors. It is engaged in financing wholesale and retail sale of automobiles and non-

automotives, and to acquire from the dealers the installment obligations covering retail sales and leases of new and used products. To a minor extent, new products from other manufacturers are financed. GMAC also finances the lease inventories of dealers, and to a lesser extent leases directly to the customers. GMAC can offer insurance coverage in different fields through Motors Insurance Corporation (MIC).

A fourth business is mortgage banking which involves the origination and marketing to institutional investors of single-family and commercial mortgage loans and the subsequent servicing of these loans on behalf of investors. This is done through GMAC Mortgage Corporation, which in 1985 acquired the Colonial Mortgage group for MUSD 190, and some ancillary service units from another mortgage institution.

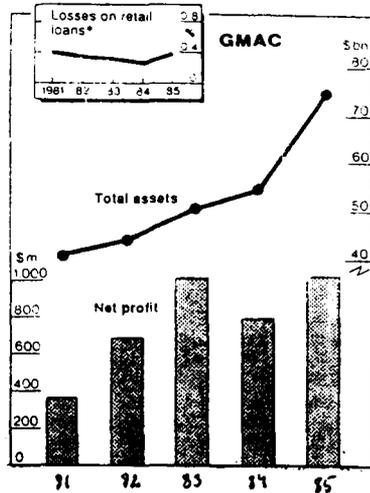
The performance of GMAC is linked to its dealings with GM. GM has used low retail financing rates for marketing reasons. (Mitchell and Hampton, 1986). This has led to a upsurge in the GMAC business volume (see Fig. 3.3) which shows GMAC's total assets, net profits and losses on retail loans. In order to get rid of some high priced cars, GMAC at times offered rates as low as 2.9% fixed rate financing (op cit). GMAC cannot refinance itself at these rates and consequently is lending at a loss.

The reason that the profit figures look impressive is the fact that GM transfers the difference between GMAC funding cost and its lending rates (op cit). This does not mean that GMAC could not survive without the cut-rate financing subsidies from the parents. Rosenblum and Pavel (1984) try to study whether the surge in autofinance provided by captive finance companies is a temporary phenomenon or the beginning of a new structure of the auto loans industry. They state:

"... with widely fluctuating interest rates, fixed rate auto loans could, at times, prove to be very unprofitable unless the lender could hedge its risks to some extent by locking in a cost of funds for the same period as the auto loans being written. But this was

difficult to do because deregulation of deposit-rate ceilings, which began in June 1978 with the creation of the 6-month Money Market Certificate, initially emphasized short-term deposits. In combination with an inverted yield curve which induced depositors to desire short-term deposits, deposit regulation forced banks, credit unions and S&Ls to place greater reliance on short-term sources of funds. The natural reaction was an increased desire, but not necessarily the ability, to engage in variable rate lending wherever possible.

Fig. 3.3 GMAC performance



Source the Economist (1986, p. 85)

Lenders like GMAC and Ford Motor Credit which enjoy excellent access to national and international money and capital markets were able to raise funds having a wide range of maturities and were able to sell innovative new instruments like long-term zero-coupon bonds that allowed them to extend the weighted average maturity and duration of their assets. In so doing, GMAC and Ford Motor Credit could effectively immunize against changes in interest rates while still offering fixed rate auto loans, something that lenders subject to Regulation Q ceilings could not do." (op cit, p. 19-20).

The authors could not draw upon any publicly available data on the duration matching techniques utilized by GMAC or Ford Motor Credit. The authors computed the weighted average maturities of the finance companies' assets and liabilities for the years 1978-82, and they found that both companies

tended to exhibit a weighted-average debt maturity between 4-5 years and a weighted-average receivables maturity of about 2 years, resulting in a maturity mismatch of at least 2 years.

The authors detect two problems with the methodology. First, the maturity mismatch is not the same as the duration of the assets. Second, the data is for the subsidiary and not for the consolidated company, consequently the measure as such might be the wrong benchmark. Consequently, Rosenblum and Pavel conclude that the companies might not have taken advantage of their ability to immunize their portfolios, but nevertheless argue that the finance companies' continued profitability throughout the period suggests that the firms were not affected adversely by the interest rate movements. (op cit, p.47)²⁷. These matters will be discussed in the following chapter.

Pavel and Rosenblum (1985, p.32), on the other hand, claim that the revoking of Regulation Q dissolves the GMAC funding advantage, as banks can now price their funding and deposits freely. It is not quite evident whether the ability to absorb interest rate risk is due to the operations or due to regulations preventing banks from bidding for money.

Pavel and Rosenblum nevertheless note that GMAC at that time wanted to acquire two mortgage banking firms (op cit) an intention made reality with the foundation of General Motors Mortgage Corporation. These businesses are very interest rate sensitive, with long-term financing and fixed interest rates. This active portfolio thinking seems to be corroborated by some statements of the CEO of General Motors:

"Through diversification, we were able to spread our risk over a broader base. For example, our financial subsidiary, General Motors Acceptance Corporation, entered the mortgage-servicing business in a big way. GMAC is now the second largest mortgage-service company in the United States" (Smith, 1986).

²⁷ In our opinion, the total risk of the group is what should be considered, not the risk of a subsidiary.

Smith also cites unspecified synergies between the GMAC, the mortgage service company and GM in the GM Annual Report of 1985 (p. 2). It should be noted that GMAC in the area of asset backed securities not has passed on all of the credit risk inherent in the lending to the purchaser of the security. Instead, the issues are guaranteed to a certain level (Rosenthal and Ocampo, 1988).

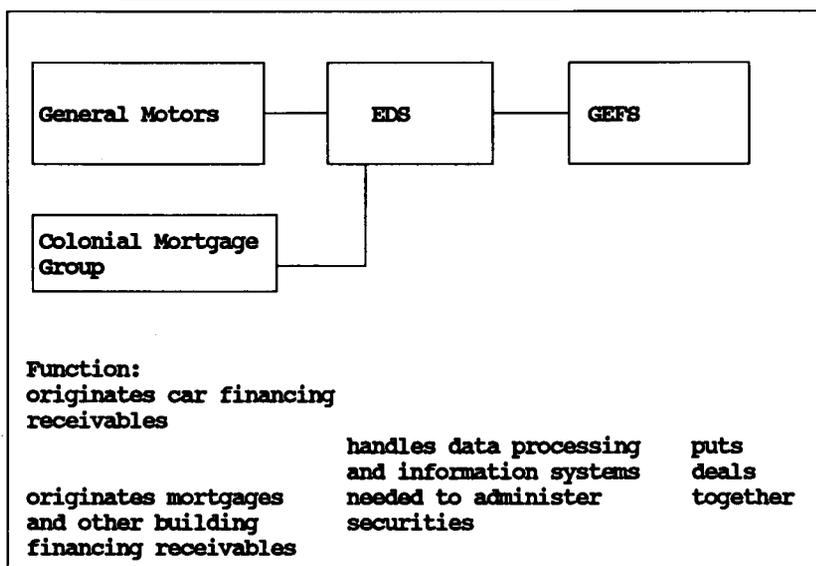
In GMAC's annual report, the possible synergies between EDS and GMAC are mentioned. As with GECC, the finance subsidiary can draw upon in-house expertise in the field of tele and data-communication. This might be another source of competitive advantage for GMAC.

To bring this together, GMAC seem to have created the same kind of chain as General Electric, using their primary business to generate receivables and package and resell them on the market. See Fig. 3.4.

GMAC does not seem to engage in any lending upstream. This could probably be explained by the old GM policy of sourcing large parts of their input internally, i.e. vertical integration upstreams, often only using some external manufacturers as a benchmark to measure the performance of the internal units (tapered integration).

GM's CEO Smith says this about GMAC's status as a captive finance company, which basically only does business with GM-related products:

"I do not have any trouble seeing GMAC become the largest financial institution in the world. If they finance people's cars, why can't they handle their mortgages, checking accounts, and everything else for them, right?" (Reich, 1986).

Fig. 3.4 GMAC's flow of sellable receivables

This indicates that GMAC could follow the same route as GECC, and become a true, fairly independent financial intermediary in its own right, maybe using some of the parent's strengths to get a competitive edge²⁸.

²⁸ In 1988, James Rosenthal and Juan Ocampo published a book describing recent issues of asset backed securities. Among these are two deal with GMAC as the originator of assets used as collateral for the securities. The first issue of so called pay-through asset backed bonds amounted to USD 4.25 billion, where car loans were used as collateral. This structuring of GMAC financing was estimated to lower the financing cost by 1.30 per cent annually (p. 90) for the firm. Through this issue, GMAC was further able to unload the loans from its balance sheet, but still has to pay for the first 5 per cent of credit losses accruing from the loans.

The second issue described by the authors is similar, but an issue of so called pass-through asset backed certificates amounted to USD 444 million. This structuring of the financing was estimated to have lowered the financing cost of GMAC by 1.05 per cent p.a. (p. 105), where GMAC also had to carry the first 5 per cent of total credit losses.

During the period 1985 to 1986, GMAC issued pass through asset-backed certificates amounting to MUSD 4,880.7 and sold receivables to pay-through asset backed obligations for MUSD 4.443,1. In total, GMAC refinanced USD 9.3 billion of

As the financial statement of GMAC and GM does not illuminate the internal pricing of the services GMAC renders GM's dealers, and as we do not know what compensation is paid for the cut rate financing performed by GMAC, it becomes meaningless to look into the performance measures in the annual report. We cannot from external data get an accurate picture of the profitability of the operations, but it could be argued that the continued investments made by GM in the financial service area indicate that the area, at least in some segments, is genuinely profitable.

Fig. 3.5 GMAC's financial intermediary spectra



GMAC primarily finances its dealers and car purchases by consumers. Lately, it has showed an interest in mortgage-backed securities and seems to have built up a structure to

its loans through the use of securitization techniques (p. 97). This shows that the balance sheet presented above, if anything, underestimates the financial intermediary activity of GMAC. It is also worth noting that GMAC to a large extent keeps the credit risk when securitizing its loan portfolio, but that it has rid itself of the interest rate risk, and some of the mismatching of assets and liabilities, i.e. that at least for this refinancing, interest rate risk immunization does not seem to be the comparative advantage of GMAC/GM. Instead the origination of loans, i. e. 'retail banking' capacity of the firm seem to be the main advantage of the firm.

During the period 1985-1987, 63 non-mortgage asset-backed security issues were floated. 47 of them involved automobile or truck receivables which constitutes 79 per cent of the total amount of nonmortgage asset backed securities issued. The issuers were GMAC, Chrysler Finance, Nissan Motors Acceptance Corp as well as commercial banks (p. 79).

It should also be noted that these volumes only constitute the amount of publicly placed securities, but a large market for privately-held asset backed securities is also said to exist.

both originate, administer and resell these instruments. See Fig 3.5 for thr firm's financial intermediary spectra.

3.5.4 Summary

General Motors is primarily a manufacturer of automotives, and is presently engaged in a fight for market share worldwide. The firm has a captive finance company which primarily provides the dealer network with financing of the inventory of cars. During the last five years, the firm has also become an instrument in the marketing of automotives. By offering low interest rates for car financing, the company can sell more cars than otherwise. During the last years, GMAC's total assets have grown rapidly, and GMAC would, in 1986, have been the fifth largest commercial bank in the U. S. according to total assets.

The reason for its alleged competitiveness has not been clearly demonstrated. GMAC has excellent access to both the U.S. as well as the international money and capital markets, and might be able to fund itself at lower rates than its competitors. Rosenblum and Pavel make an insubstantiated claim that it might be GMAC's superior ability to immunize their portfolio which creates their competitive edge in retail automotive financing, but this effect would in their view have vanished with the abandonment of Regulation Q.

Another possibility is that GEFS has an in-house data and telecommunication expert in EDS, but this is a less plausible deciding factor, as EDS was acquired after GMAC became involved in large volume retail automotive financing. It might however have enabled GEFS to move into the mortgage backed securities issuing and servicing business.

3.6 Sears, Roebuck and Co

3.6.1 Introduction

In 1886 Richard W Sears founded what would become Sears, Roebuck and Co, Sears (Time, 1986), the world's largest

retail merchandiser, which sells a broad line of general merchandise and services through approximately 800 retail facilities and catalogues in the U.S. Sears also operates merchandise and credit operations in Canada and Mexico.

About 75 per cent of U.S. adults are expected to make at least one visit annually to a Sears store, and Sears is said to have a strong position in "middle class America".

Credit has always been an important part of Sears' business, and already in 1911 Sears offered credit to its customers (see Table 3.2). In 1984, 61.7 per cent of gross sales of merchandising were made on a revolving and installment credit basis, with approximately 24.7 million active customer credit accounts. Up to USD 2.0 billion of these receivables could be resold to banks in 1984 through a revolving receivables sales facility.

3.6.2 Sears stated strategy

Sears wants to use its distribution network to obtain more marginal business. The major expansion seems to be in the field of consumer finance. Sears introduced the "Sears Financial Network" in 1982, and under this organizational umbrella Sears tries to provide a financial supermarket for its broad customer base. As of March 1985, more than 300 Sears Financial Network Centres had been opened in selected retail outlets.

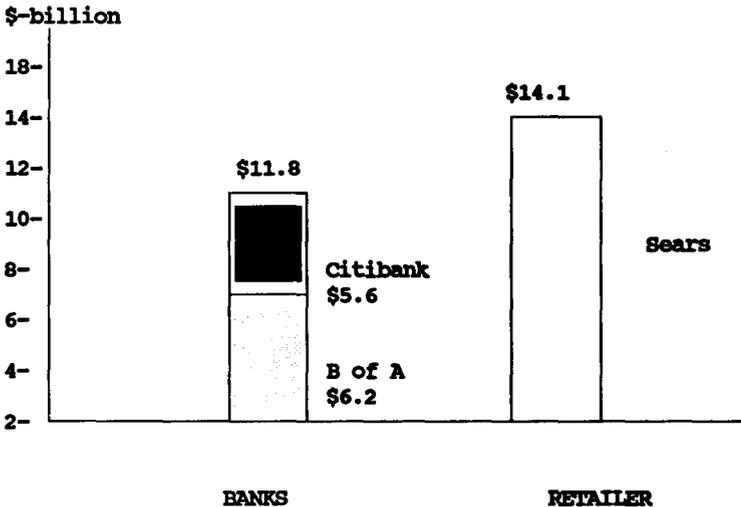
3.6.3 Sears Financial Service

In the Financial Centres, Sears' customers are offered insurance, mortgage financing, brokerage and funds management services. The business idea seems to be that the middle class American should be offered advanced financial service at one outlet. Sears had 36 million credit card and catalogue customers in 1985, representing 45 per cent of all U.S. households, and the volume of its credit card business in 1983 far exceeded the volume of the combined credit card volume of the two largest U.S. banks, and this for a card

only accepted in Sears' store. See Fig. 3.6.

This gives Sears a unique data base of credit history and customer relationships i.e. they have a distribution network. Nevertheless, Sears wanted to pursue other channels in the financial service industry and wanted permission to open up "family banks", which could take deposits, but only lend to consumers.

Fig. 3.6 Credit card volume 1983



Sears opened a banking department as early as 1899, which took deposits and paid interest on deposits, but these activities were folded in 1903 (Time, 1984 p. 86). In 1969 Sears acquired two savings and loans associations in California, which they combined into what is now Sears Savings Bank. These banks were sold in 1987 and Sears now relies solely on their financial centres in their retail outlets. As the reach for a national "family banking" was stalled by the legislators, Sears changed strategy. In 1984/85 it introduced the "Discover Card", which unlike the "Sears Card" will be accepted outside the Sears stores. According to Sears, "Discovery Card" will, in addition to its conventional credit card function, but also offer deposit-taking and cash withdrawals from ATM (Automatic Teller Machines) and cash management services. These services will

be offered by the different entities in the Sears Financial Network.

The card is intended to link together the different units of Sears Financial Network so that the client can perform all his financial transactions with a plastic card. "Discover is the clue that will put together our banking, insurance, brokerage and real estate products", claims E. Brennan, CEO of Sears (Ellis, 1985). Sears has already bought a facility in Delaware - Sears Greenwood Trust Co - which provides the cardholders with more than 5.000 ATM nationwide, a figure Sears intends to increase (Byrne, 1986). This seems to be a continuation of the strategy to introduce nationwide commercial banking through the combination of Sears' customer base, a large lending base and marketing skills, in order to establish a strong core deposit base. Ellis (1986) reports that 4.7 million cards had been issued, and that 380 thousand merchants had accepted the card. The usage of the card at Sears had so far been good, but among outside merchants the card had not become as active as anticipated. A successful launch of the Discover Card will be needed, as Sears' different financial subsidiaries are not too profitable. (Wiener, 1986 see also Table 3.7). The Sears Financial Network generates a large number of new accounts, but apparently, the coordination between the

Table 3.7 Sears' profitability

Millions USD	1985	1982		1985	1982
Earnings			Revenues		
Merchandise	766	432	Merchandise	26,552	20,667
Allstate Insurance	605	475	Allstate Insuran	10,379	7,459
Coldwell Banker	86	52	Coldwell Banker	949	470
Sears World Trade	(11)	-	Sears World Trade	236	-
TOTAL²⁹	1,303	861	TOTAL	40,715	30,020

Source: Wall Street Journal, Tuesday April 22, 1986 p. 6.

29

Includes corporate results and inter-group transactions.
Sears World Trade was started in 1983.

units, intended to create the cross-selling synergy, is less than perfect. Discover Card might change this but, as stated above, this is still an open question.

Sears' confidence in the Financial Network Centre seems to be unbroken. Sears sold its California Savings Banks to Citibank, and will in the future service the market through their Centres in the retail outlets, through direct mail and the "Discover Card".

3.6.4 Sears Mortgage Business

Through Homart Development and especially through Coldwell Banker, Sears generates mortgage business. Coldwell Banker is the second largest real estate broker in the U.S. being the choice of approximately every tenth home changing owner in the country (Weiner, 1986). These mortgages can then be pooled together and used for mortgage backed securities that can be placed on the market by Dean & Witter. See Fig. 3.7.

Fig. 3.7 Sears' organization of its financial intermediaries

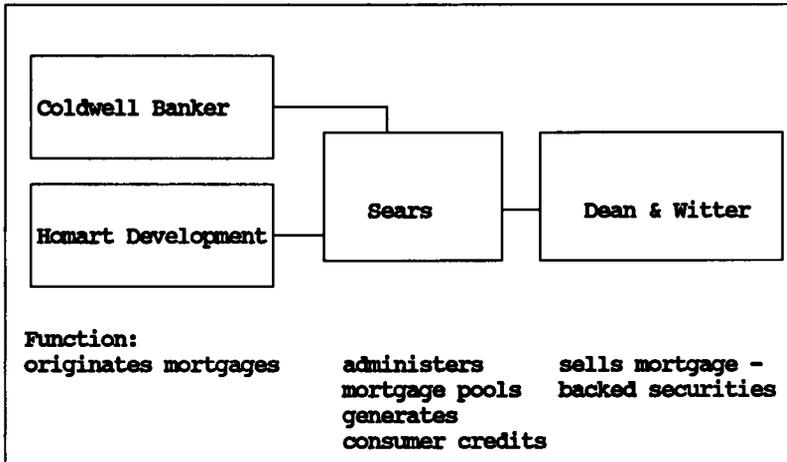
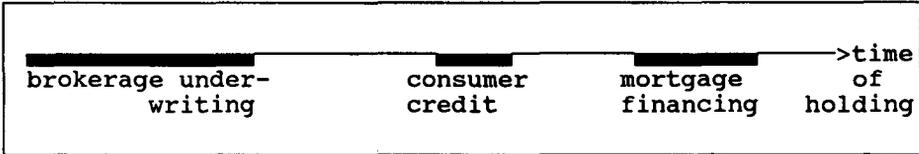


Fig. 3.8 Sears' Financial Intermediary Spectra

3.6.5 Conclusion

Sears' comparative advantage seems to be:

- Their strong customer base, for which they often have long credit histories. This might make credit analysis less expensive than for most other firms.
- Their retail network and strong position in mortgage origination. These can be used to create a financial supermarket, and possibly to open up national banking through deposit-taking plastic cards, which would give them access to a base of "core deposits" to fund their own consumer credit operations. They have the possibility to overcome national segmentation through their national network.
- Ability to exploit alleged synergies between lending money and selling insurance policies.

3.7 Summary and Conclusions

We have seen that the U.S. bank market is segmented through regulation, both in its geographical and in its product scope. Until recently, the market was also constrained as regards the price banks were allowed to pay for demand deposits. We have also seen how several manufacturing and retailing firms have entered the financial intermediation industry. Some of them have become major players in this field. In certain cases these regulations seem to have been one of the driving forces, for M & R-linked financial intermediation.

General Motors, Ford, Chrysler and General Electric all finance automobiles. Sears and Roebuck are deep into consumer

financin and insurance, creating their financial supermarkets, possibly drawing upon their intimate knowledge of middle-class Americans' financial records, attained through years of consumer lending.

General Electric Credit Corp has built up a large volume of industrial loans through tax-based financial leasing, which utilizes the parent's large profits to deduct the investment tax credits associated with the purchase of capital goods in the U.S. Even with the implementation of the tax bill in the U.S., GECC has a future. It has diversified its activities significantly over the last years, and it now conducts merchant banking, investment banking and commercial banking activities.

Moreover, General Motors Acceptance Corporation seems to be increasing its scope of activities. The inclusion of a mortgage service business in the GECC portfolio, and statements by GM's CEO all indicate this. Taken together, these stylized facts seem to indicate that M&R-linked financial intermediation is a growing part of the U.S. financial intermediation industry.

GECC, Sears and GMAC all seem to invest in their ability to secure the loans they originate as part of their business. (GMAC) or as part of an independent diversification strategy towards the financial sector.

As for the explanation of the existence of M&R-linked financial intermediation, it is interesting to note that the two firms studied rely primarily on the capital and money market for their funding. We believe that access to borrowed money outside the bank system is a prerequisite for any large scale M&R-linked financial intermediation to occur. It is interesting to note that we have studied two extremes when it comes to firm liquidity: General Electric, which is very strong financially, and General Motors, whose financial situation is weaker.

We know that financial intermediaries perform three main activities: (1) evaluating and extending credit, (2) trading and arbitraging markets, and (3) accepting different risks in order to transform assets. We believe that we can see two distinct advantages that GE and GM may have with respect to (1) and (3).

As far as evaluation is concerned, it has been mentioned that General Electric Credit Corporation has a competitive advantage over traditional financial intermediaries when it comes to evaluating companies operating in middle-sized industries known to General Electric. This knowledge might reduce the risks inherent in the credit evaluation and might enable GECC to charge lower margins than its competitors.

The same might be true for General Motors, if they are in a better position to evaluate the creditworthiness of their car buyers than the ordinary financial intermediary. We do not see any particular reason why this should be the case.

From Rosenblum and Pavel we got a hypothesis of why manufacturing firms might be better absorbers of risk than traditional financial intermediaries. If financial intermediaries through operations in the money and capital market can immunize risk inherent in e.g. long-term fixed interest rate financing which other financial intermediaries through regulations are prevented from doing, they have a competitive edge over the financial intermediaries. This is also true if the manufacturing firms, create interest rate exposure and currency exposures in their operations. They are able to immunize or hedge these by extending loans or borrowing.

The argument that corporate banks can lend money cheaper than the "pure" financial intermediaries, due to their good credit ratings, is a little dubious. Financial intermediaries have access to the discount window of the central banks in case of

liquidity problems. It can even be argued that the monetary authorities have to bail out very large banks with solvency problems. The experiences financial markets made in connection with the Herstatt crisis, the faltering of Penn Square and the problems in connection with Continental Illinois seem to indicate that this is true.

Consequently, it is not impossible that banks can lower their capital in a manner not feasible for manufacturing firms' financial subsidiaries. It follows from this that the firm will have to charge higher interest rates than ordinary financial intermediaries to cover its cost, *ceteris paribus*. It is in our opinion unlikely that it is pure funding advantages which motivate the manufacturing and retail linked financial intermediation, unless the markets perceive the parents as lenders of last resort.

We can imagine that Sears has a better advantage in getting a well diversified loan portfolio, as they have a vehicle for funding which is nationwide - the Discover Card - as well as loan offices throughout the U.S. This should make them better able to diversify their assets over regions, compared to banks, which might have loan offices nationwide but in general cannot accept demand deposits on a nationwide basis. The division between the commercial and investment banking activities does not seem to be a major factor behind the occurrence of M & R-linked financial intermediation. Nevertheless, it should have been easier for the U.S. firms to get financial advice from their banks as to how to circumvent the banking system, since the investment banks will not lose any business when giving such advice, unlike universal banks.

It is important to note that taxes seem to stimulate a considerable amount of leasing related business. Investment tax credits are said to have helped GE to become one of the largest 'big-ticket financiers' in the U.S. There is still a need for an explanation of why GE absorbs the risk itself,

instead of letting outside firms handle the operations.

From the perspective of our study, this Chapter has given us several important insights. First, it has given us a demonstration of the broad range of activities which could be conducted by non-financial firms. Second, it has given us some possible explanations which go beyond those suggested in Sweden. It has also demonstrated the importance of noting the regulatory framework within which the actors in the financial service industry have to work. In the next chapter, we will try to use the insights from this pre-study when formulating hypotheses and directions for the case studies we will conduct in Sweden.

CHAPTER 4

Hypotheses and Research Process

4.1 Introduction

Having studied manufacturing and retail-based financial intermediation in the U.S. and after the discussion of what could constitute the economic functions of financial intermediaries as well as the economic significance of the firm's financial decision, we are prepared to generate hypotheses about why Swedish manufacturing firms might want to perform financial service activities. The aim is to follow up the questions and relate them to the Swedish context.

We will proceed in the following manner: our findings in the U.S. will be contrasted with the different types of economic functions suggested in the microeconomic literature: the asset and liability service, the 'two sided nature' of financial intermediation, and finally the 'pure' financial service. Furthermore, we will discuss in what manner regulations and taxes might affect external financial activities of firms in Sweden and in what manner such activities would be conceivable. We will formulate our hypotheses and also specify which questions we will pursue when conducting our case studies in order to be able to formulate new hypotheses.

We go on to describe the three different studies aimed at

answering the research question formulated. Each individual study is related to the questions it is supposed to answer. Further, the design of the studies will be discussed. The chapter concludes with some remarks about the interlinkage between the different empirical parts.

4.2 Asset services

The asset service explanation for financial intermediation which will be considered is asymmetric information in combination with 'adverse selection' or 'moral hazard', economies of scope, and lack of lending capital. We will discuss each of these in the subsections 4.2.1 to 4.2.3, and hypotheses and areas of interest for the case studies will be specified.

4.2.1 Asymmetric information

We have seen that asymmetric information in combination with 'adverse selection' made it difficult to assess the riskiness of proposed projects. 'Moral hazard'-problems also made it difficult to observe the final outcome of a project, monitoring the borrower. This means that the financial intermediary will have to perform two functions: assess the creditworthiness of prospective clients and the outcome of projects, and simultaneously signal to the market that the projects are 'good'.

Some distinctions have to be made when studying asymmetric and non-financial firms' financial intermediary activities. Besides having a supply of funds, information about the prospective buyer is the key feature in lending money. As the firms we want to study are active in the real economy, they have private information about people and firms they do business with and industries they are active in, and often some capacity to forecast macroeconomic variables.

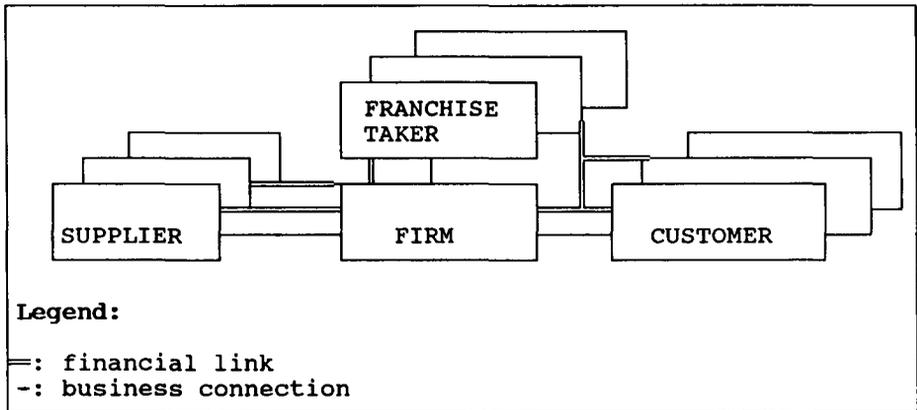
Ingves (1984), studying trade credit, states that frictions in the financial markets constitute the foundation for

intermediary activities. The author claims that trade credit can be perceived as a way to increase demand for the firm's products. The firm will be able to offer the client better borrowing rates "because of different information about the probability of default, different types of security, different attitudes to risk and different opportunity to diversify." (p. 163) Besides these arguments Ingves investigates two special cases: (1) where pre- and post-payment reduces seller or buyer uncertainty; and (2) when continuous relationships in combination with transaction cost make trade credit a cheaper alternative than direct payments.

Ingves neither explicitly explains the different attitudes to risk - the violation of Fama's third assumption (see section 2.2.1 above), nor does he explain why the firm's ability to diversify differs, i.e. why there exists unequal access to financial markets.

Nevertheless, Ingves' work gives us a good framework to study the relationship between parties in business deals.

Fig. 4.1 Some possible financial relationships between business parties



Any party can finance the other and there is a priori no way to determine which unit provides the other with financing by basically arguing that there exists asymmetric information.

If both parties have the same information about each other's credit standing, it will be impossible to determine which of the parties will provide the financing.

This is important as asymmetric information might explain why an unrelated financial intermediary might have a cost disadvantage in financing one of the parties, but some other factor has to explain which firm attains credit (unless only one of the firms involved has superior information).

We suppose that credit will be given by the firms which have access to the capital markets and therefore do not have to finance themselves in the banking system. They will provide credit to customers for which a bank would otherwise have to conduct the necessary and costly credit analysis.

If the firm has good knowledge about its own or related industries, it might have a better ability than financial intermediaries to analyze the riskiness of loans³⁰ to these industries, i.e. it is not necessary to have direct business links with the firm to possess information relevant for credit analyses.

In the U.S. it has been suggested that General Electric has a superior knowledge of some mid-tier industries of which banks have no specialist knowledge. This superior knowledge, gained through the everyday business transactions with these firms, would enable the firm to assess the creditworthiness of the firms more cost efficiently than banks in the U.S.

This is a situation which could arise in Sweden for the same reasons as in the U.S.A. Mid-tier Swedish firms do not have access to international capital markets and many of them are

³⁰ It should be noted that the advantage of asymmetric information might very well be offset by the negative effect of creating a loan portfolio of claims with little diversification over industries, geographic regions, etc. At worst, the loan portfolio's return will be positively correlated with operating income.

too small to issue Swedish CP-programs. Therefore, a large Swedish firm having access both to international markets and a good knowledge of either the customer as such or the industry in which customer is active might have a better ability to lend him money.

H1³¹: We hypothesize that large Swedish manufacturing firms lend money to other, smaller firms, active in industries of which the lender has specific industry knowledge, based upon this superior knowledge.

Sears has, through its credit card and lending business, a long-standing knowledge about the credit behavior of large segments of the U.S. population, and capitalize on this. Furthermore, their lending activities will be diversified over larger geographical areas than the state chartered banks.

We do not consider that there are any commercial opportunities for Swedish firms in consumer lending based on the same type of credit knowledge-advantages as Sears has. First, we have restricted ourselves to the study of manufacturing firms, who, if they sell consumer durables only sell their product a couple of times during their customers' life time, at the very most. Second, credit cards were not in wide use in Sweden before the 70s and the Swedish universal banks generally maintain credit card operations. These operations are also often used when administering specific retailers credit cards, e.g. the NK department store card. Some retailers, like IKEA furniture and interiors, administer their own credit card operations, but have only done so for a comparatively short period of time. It is therefore unlikely

³¹ H(number) stands for hypothesis, D(number) stands for direction of study when conducting the case studies. The concept of 'Direction' will be discussed later in this chapter.

that we will find this kind of activity in Sweden³².

•We will therefore not make an attempt to study financial activities in Sweden which are based upon long consumer credit records built up by non-financial firms.

4.2.2 Economies of Scope

It has in the U.S. been conjectured that redundant computer capacity of large engineering-based firms has been one of their sources of competitive advantage when competing in the financial service industry. As many large engineering based firms in Sweden need large computers in order to be able to make complex engineering and CAD-calculations, this might be a source of competitive advantage in Sweden too. Access to cheap computer capacity is an advantage both for analytical purposes, i.e., the handling of large financial portfolios and position-taking, or for the handling of routine financial operations geared towards the mass-markets. As this capacity will probably be priced on a marginal cost basis, a cost advantage for engineering firms vis-à-vis banking firms could arise.

H2: We hypothesize that the use of computer capacity from other parts of the firm than the financial department constitutes a major competitive advantage for manufacturing firms vis-a-vis the banking sector.

A further type of economy of scope seem to be inherent in the fact that the customer is at the point of sale when he might need financing for the purchase. There are two possible reasons why the selling firm might want to give him financing: if he leaves the sales outlet, he might change his mind, which should be of importance especially for products with a high emotional content in the purchasing decision. Furthermore, if the financing is provided by the same person

³² When editing the final version of this text, this statement might have been proven wrong. The cooperative retailer 'KF' in June 1990 bought their own bank: JP-bank.

selling the product, the joint production costs of originating the loan and selling the product(s) might be lower than if the origination and the sale were realized by different entities.

The problem is that it is difficult to assess whether a purchase benefits from 'cheap' financing or from irrational motives during the process of purchasing, which might vanish if the client leaves the sales outlet.

There are several problems associated with these economies of joint production. We are not able to specify in what manner these economies arise and it is difficult to ask general questions about whether 'economies of joint production exist'. Such an approach would, we expect, only generate general answers not giving us further leads into where the economies of joint production might rest.

For other economies of scope than the sharing of computers, for which we have concrete empirical support:

D1: We will pursue the question of joint production in the case studies in order to identify concrete areas where economies of joint production might arise.

4.2.3 Lack of Lending capital

We have seen how, Campbell and Kracaw (1980), among others, argued that the lending capital might not be allocated in an optimal manner. A trade journal (Euromoney, 1985) has argued that a lack of lending capital exists. This is due to problems with uncertainty of banks' capital adequacy after the problems they encountered with their loans to the Third World. This uncertainty supposedly made it necessary to find new intermediaries which could be the non-financial firms.

To us, this argument is not convincing in a Swedish context. First, those intermediaries which have adequate capital to support their activity would signal this by publishing

information about their credit standing. The problems therefore concern only segments of the banking industry. The second argument is related to the first and concerns the Swedish banks, who have a good rating standing, some of them having sold off their problem-ridden Third World loans to other investors. Some of the Swedish banks maintain the best credit rating possible and to us it seems as if the lack of capital adequacy of banks is not relevant, at least not in a Swedish context.

The problem of the stability of the international banking system on the other hand has been discussed avidly. We will therefore, especially when considering our sub-goal Ib, why Swedish firms are establishing foreign financial intermediaries, study to what extent firms are performing financial intermediation to non-Swedish agents otherwise unrelated to the firm.

D2, We want to discover if the international units lend money to non-Swedish agents otherwise unrelated to the firm.

4.3 Liability services

4.3.1 Payment Service

In our empirical studies, we have so far not encountered many liability services performed by non-financial firms. This can partly be explained by the linkage between deposit-taking service and payments service and regulations imposed upon deposit taking institutions.

The Sears' 'Discover Card' is partially a deposit instrument which gives the holder of the card the ability to pay for his or her own purchases in Sears' sales outlets as well as in other stores accepting this card. Deposits earn interest and the card resembles the Swedish 'Bankkort' which is connected to the card holder's demand deposit account, and can be used with credit connected to it or to pay with at the point of sale. Unlike the Discover Card, the 'Bankkort' does not pay a

bonus for all transaction conducted with the card.

Furthermore, the acceptance of demand deposits would in Sweden require governmental approval, which is not likely to be given. Ways to circumvent the regulation are difficult to conceive, as the regulatory body, 'Bankinspektionen', seem to define its legal authority quite widely.

In addition, the Swedish payment system functions well, with two competing giro systems and an electronic clearing system for larger amounts. General Electric's participation in a clearing system in California would therefore not generate the same amount of interest in Sweden. The 'Discover Card' will also be more difficult for Swedish firms to copy: in the first place, there exists no kind of credit card operation like the 'Sears Card' to base the operations upon and, furthermore, there exists a similar product in Sweden. It is likely that a new entrant would have large problems as a late entrant into the this market. Therefore:

•We will not study any payment services performed by Swedish firms.

4.3.2 Storage of money service

When the intermediation process was primarily bank-driven, demand deposits as well as money were the only stores of value with high liquidity. The securitization process has created a new situation where the securities issued by the firm become a store of value, but unlike money they pay interest and, therefore, there is no 'float' gains to be made for firms issuing IOU:s. The storage of money function is inherent in the concept of negotiable IOU:s.

4.4 The 'two-sided' nature of financial intermediation

We have seen that the process of financial intermediation could have a two sided nature, e.g the banking firm not only intermediates and carries credit risk, but occasionally also

carries some risk of financial nature, i.e., price risk of IOU:s. This price risk could be interest rate risk in one country, but also exchange rate risk, i.e., that the exchange rate between different countries might change.

Why the banking firm might earn money by mismatching assets and liabilities is not evident. In section 2.5.3 above, we have seen that this could be due to the possibility that a risk premium is paid for carrying financial risk, a risk premium that would be added to the expected value of the financial variable. Another possibility would be that those financial intermediaries that call themselves banks, through their governmental backing are able to carry this risk and offer below market rate interests to their depositors who know that they do not need to fully compensate themselves for the interest-rate risk the financial intermediary carries.

We perceive two possible reasons why non-financial firms would have advantages when performing 'two sided' financial intermediation activities. The first is connected to the segmentation of the Swedish capital market, and the second is, given that real-financial linkages exist, that firms are better bearers of certain financial risks than are financial institutions. We will consider these issues in the two following sections.

A precondition for the firm to be the sole beneficiary of its ability to absorb or take upon itself financial risk is that the extent to which it is exposed is not transparent to the market. We will use the state contingent claims framework to describe in what manner transparency is the key to the appropriability of the economic value of the claim structure. In sub-section 4.4.2 and 4.4.3 we discuss in what manner segmentation and 'real-financial' linkages might create a situation where the non-financial firm might be able to absorb financial risk.

4.4.1 The firm's decision in an incomplete financial market
In order to describe an economy with uncertainty, Debrue (1959) and Arrow (1964) divide the future into states, where the production of commodities, and thereby consumption, is distinguished according to the state of the world in which they are produced. The different states are distinguished by factors affecting production and factors that might affect the utility different investors perceive when consuming the produced goods.

An economy in equilibrium will, therefore, have to clear markets for immediate consumption and the market for state-contingent claims. If future state-contingent claims are dependent upon the pay-off of securities issued by firms, the securities market will also have to clear the prices for state contingent claims.

The portfolio choice will depend upon the investor's state probabilities, initial endowments and utility functions in a similar manner as in a normal equilibrium. The utility function must be specified for separate states.

This simple description of an economy can be extended to any economy. We need to ask if whether there exists a Pareto optimal allocation of claims to the streams of profits originating from the different farms. Whether Pareto optimal allocation can be reached depends upon whether the security market is complete or not.

If the security market is complete, the securities can be combined in such a manner that the combination of assets pays only in one state. Such combinations are called Arrow-Debrue securities or simple state contingent claims. If markets are perfect and complete, Miller and Modigliani's proposition of the irrelevance of the firm's financial decision holds. Any inoptimal financial policy of firms might be arbitrated away by the creation of a portfolio of offsetting state-contingent claims. More interesting is the role of the firm's financial

decision in an incomplete market.

In incomplete financial markets, not all state contingent claims that are needed to complete the market can be created. In such situations there might exist other combinations of state-contingent payments which would better suit consumers/investors. Ross (1976) shows that there is a possibility that the state contingent cash flows of firms can be used. Options can be written against these, which in turn might complete markets.

Another alternative would be if the firm issued securities which could complete the market. Amershi (quoted in Strong and Walker, 1987) argues that the firm cannot appropriate the value of its ability to complete the market. The argument is that even if there are restrictions on the sale of shares, the market can appropriate the value of completing the financial market by issuing state-contingent claims on the basis of the firm having a certain net cash flow.

This brings us back to what states are. The state space describes all events that have economic significance for at least one actor. Writing a state contingent claim is equivalent to carrying risk. States are real events, the outcome - the dollar payment - will be contingent upon a real event. Other variables such as unexpected inflation or unexpected changes in monetary variables or industrial activities might be variables in the state space. If the firm, in such situations, has payments which due to incompleteness in the financial markets are demanded, but where no supply exists, the firm might issue claims upon these states and thereby reap some economic gain. The problem is that only the firms know the outcome of different states. This is the same kind of asymmetric information problem as the one in section 2.5.1.2, and we have also seen that financial markets do not seem to price private information. This implies that private information could be the basis for the firm's financial activities.

Firms' financial departments have the opportunity to add new state contingent claims to the financial markets as they are able to analyze the effects of different states upon cash-flows. In this setting, firms' financial intermediaries become organizational tools in order to create an optimal financial structure of the firm. The key to the firm's financial intermediation activity will be its risk bearing capability in combination with the inability of markets to assess the effect of certain states on the firm's cash flow.

There are two basic situations where the inability to analyze the firm's state-contingent cash flow would give the firm an economic benefit: either when markets are segmented and/or when there are real-financial linkages. The firms will have to reduce uncertainty, by increasing the analysis of their future expected cash flows. That means that budgets, with management's predictions of future cash flows, in this context have a specific dimension: they reduce uncertainty. More specifically, they enable treasury managers to transform uncertainty into risk and therefore to handle it, in state-space. It gives the firms' management a tool to analyze what people outside of the firms regards as uncertain, investors cannot assess the likelihood of an outcome in a specific state, uncertainty prevails. For insiders, this uncertainty is assessable and therefore transformed into risk. We argue that in a situation with asymmetric information this ability to transform uncertainty into risk will have an economic value as long as it helps firms to complete markets, by issuing state-contingent claims.

4.4.2 Segmentation

Segmentation between and within national markets gives firms the possibility to earn money if they are able to circumvent the regulation (Kane, 1984). The firm takes on financial risk. In comparison with pure arbitrage, where the financial intermediary purchases a financial asset and immediately resells it, this kind of financial risk is characterized by

the provision of financial risk. There are two possibilities, either that there are regulations which creates segments within a financial market, i.e. different agents are subject to different regulations, or there are regulations segmenting national markets from each other. In both cases, non-financial firms might be able to circumvent the regulations creating the segmentation.

4.4.2.1 Segmentation between different national financial markets

Further arguments for market segmentation are found in the literature of corporate finance. Lessard and Shapiro (1984) and Lessard (1987) identify three basic areas for global financial management³: (1) minimizing taxes; (2) managing currency and political risk; (3) and exploiting financial market distortions.

Walters (1984) also perceives a segmentation of the international banking market by regulations in a study of international banking.

Heywood (1986) describes how the interest rate for eligible bills in the London Discount Market could be lower than the inter-bank lending rates for sterling for the same periods. (p. 125) These circumstances can be used by the firm to arbitrage the markets, as they produce eligible trade bills, an activity 'pure' financial intermediaries cannot directly participate in.

Another type of interest rate differential has existed between the U.S \$-Commercial Paper (CP) market and the Euromoney \$-Commercial Paper market (MaCauley and Hargraves, 1987). In this case, firms can issue CP:s in one market and buy in the other without covering any of the costs for

³ Lessard (1987) adds two other areas; "to provide a yardstick for judging current and prospective operations; to raise funds required for these operations" (p. 147)

capital and liquidity requirements often imposed upon financial intermediaries. Today, the rates seem to be converging.

It seems quite clear to us that non-financial firms might have advantages that enable them to perform financial services in a more efficient manner than traditional financial intermediaries. Sears can diversify its consumer loan portfolio over several states, as can General Electric and General Motors. Normal U.S. banks would have to set up lending offices, but refinancing in the form of deposits would have to be made in their home states. In the international context, several regulations exist which might make it advantageous to be a non-financial firm. The origination of discountable bills which made arbitrage possible in the British markets was one example of this.

D3: We want to identify areas where the firm could circumvent regulations segmenting national financial markets from each other, as well as identifying regulations within national financial markets.

4.4.2.2 Within different financial markets

In early works about captive financial intermediaries, Andrews (1964) somewhat reluctantly suggests that the reason for captive finance companies lies in the fact that they increase the borrowing capacity of the firm. This is the result of their ability to lever their capital to a greater extent than their parents would be able to.

Lewellen (1972) shows normatively how this could not be true, as the legal separation of two cash flows from each other would only increase the risk of the parent firm going bankrupt⁴. The captive financial subsidiaries primarily

⁴ As the inflows of the finance companies are assumed to be matched by their lending, the negative effect of the loss of pooling of two possibly not totally correlated cash flows will only affect the parent firm's riskiness.

refinance the trade-related loans given by the parent firm. Separating the short term loans and giving the captive the legal title to the debt means that the captive can refinance the loans with their own commercial papers. The parent company thereby rids itself of short term assets which are fairly risk-free. The total variability of the parent company's future cash flows is therefore bound to rise. The riskiness of the firm increases. Unless the financial market cannot correctly assess the combined deal, the captive firm cannot increase the borrowing capacity of the parent firm. Otherwise, the captive's better borrowing rates will be offset by higher borrowing rates for the debt remaining in the parent firm.

This issue is an early statement of what later has been known as the 'me first'-behavior of investors purchasing instruments of a firm. If other lenders have provided the firm with loans without any covenants restricting the issuance of new bonds, then the new lenders can attain a better right to the firms's assets in case of financial distress than the 'old' bondholders. This will make financing cheaper for the owner of the firm, and will constitute a wealth transfer from the 'old' bondholders to the owners of the firm⁵. The empirical evidence for this kind of behavior has been fairly scant, with the notable exception of one study of the effect of the formation of captive finance companies on the wealth of stock and bond holders (Kim, McConnell and Greenwood, 1977). The idea is the same as that of Lewellen, i.e., short term receivables refinanced by the captive firm are less risky than other assets, and that by singling out these assets, the riskiness of the assets left with the parent company increases. The value of the bonds issued by the parent company thereby decreases and a wealth transfer takes place, favoring the owners of the parent company.

⁵ See Fama (1978) for a review of the literature.

These results are, on the other hand, contradicted by simulations made by Sondhi, Fried and Ronen (1988), where the authors simulate the debt capacity of a firm with and without a finance subsidiary. They work under the assumption that the cash flows for the finance company and the parent company are uncorrelated and the formers cash flow totally risk free. Under these circumstances, there were only small advantages for the firm's shareholders when separating the cash flows into different pools. These advantages would accrue primarily to top credit firms. We still think that this is not the case as the increasing riskiness would, in a dynamic context, increase the cost of lending and also of hiring personnel etc, when it becomes apparent that the parent-company is more risky⁶.

Andrews introduces another possibility, without developing it. He claims that some of the operational agreements between the parent and its legally separate captive are structured in such a manner that they enables long term financiers to lend money to the group.

This is related to restrictions on the lowest interest paying capacity the borrowing institution is allowed to have in order to be allowed to borrow from these institutions. Some large institutions are through regulation only allowed to invest in papers issued by borrowers whose financial ratios show some characteristic, e.g the interest rate paying capability in relation to the incoming cash flow. If these criteria are upheld, the firm will be able to borrow from these institutions. In this setting, firms would found captive finance companies in order to be able to refund their trade related loans in market segments otherwise unattainable

⁶ The results of Kim, McConnell and Greenwood's study has since this was written been modified by Malitz (1989) who with refined methods for the same sample found very small wealth transfers between bond holders and stock owners after the announcement of the foundation of a captive finance company. What he did observe was a marked increase in the firm's overall value which seems to indicate some other kind of advantage when forming a captive finance company.

for them. Thereby, the captive can show interest paying capacity ratios in line with regulations some institutions have to abide by. Sondhi, Fried and Ronen also mention this possibility, but in their paper the bond covenants of the parent company and finance company are not published, so the inherent logic is not revealed.

4.4.3 Real-financial linkages

If real-financial linkages exist, then the financial decision becomes relevant. Such linkages could arise because of long term wage contracts (Wihlborg, 1980), specific liquidity function of investors or sticky prices due to oligiopolistic competition (Krugman, 1987). Sondhi, Fried and Rohnen (1988) suggest the existence of long term nominal contracts of labour and supplier as one possible source of covariance between the value of financial and operational cash flows. We will postpone the treatment of how such a real financial linkage might arise and its possible significance for the firm until chapter 6. We will only observe that an incomplete financial market and private information within the firm's real financial linkages would enable the firm's treasury to issue state contingent claims which might complete the market. A relevant question therefore becomes whether the Swedish markets are incomplete or not.

4.4.3.1 In the Swedish context

Swedish financial markets were until July 1989 segmented from other markets through a regulation introduced during the war. This regulation prohibited Swedes from making portfolio investments abroad and created a situation where Swedes have had no opportunity to hedge their future consumption against a devaluation of the Swedish krona. It is therefore possible that Swedish firms preferred to carry exchange rate risk during this period, so that their shareholders could create a consumption hedge for the same risk. The firms, though, had to publish the sensitivity of their cash flows to changes in the exchange rates. It was otherwise unlikely that investors would know in what manner they should create their hedges.

There is a further complication connected with this kind of hedging activity. The creation of the portfolio of shares also implies that the investor would carry large amounts of stock market risk, a risk for which there were no instruments in Sweden against which to hedge in the studied period.

The other type of argument is more interesting, i.e. that firms have an inherent capacity to carry financial risk due to their operations and a connection between real activity and prices of financial instruments. It is interesting, because it is an explanation that fits some of the claims made in the U.S. case.

Rosenbluhm and Pavel suggested (see section 3.5.3 above) that one of the reasons for the competitiveness of GMAC was its superior ability to carry interest rate risk. They did not elaborate in what manner this capacity arises.

Under these circumstances, firms would have to consider the way they structure their financial claims, and one possibility would be to carry long term interest rate risk. This can be done by either rolling long interest rate portfolios, with all difficult tax consequences associated with a portfolio of assets that are 'sold' but where the position created is supposed to be extend for a longer period of time. Possibly, it could also be done by lending fixed interest rate money.

To summarize, we have the general assumption, that non-financial intermediaries might be better risk absorbers than financial intermediaries. We also have two possible explanations for why this could be so: first, firms assume that they could complete an incomplete market with the help of securities issued on the basis of their cash flows; firms in general are better risk absorbers than 'pure' financial intermediaries, given an economy with real financial linkages in the economy, and can supply the financial markets with specific state-contingent securities. Or the firms can

circumvent some regulation segmenting a market, thereby attaining a risk premium.

This gives us two specific hypotheses:

H3: We hypothesize that the segmentation and the incompleteness of the financial markets in Sweden creates a situation where firms can take upon financial risk and receive a risk premium. This increases the financial risk of the firm. This hypothesis has a corollary: no real-financial linkages exist and the hypothesis can only be investigated under this assumption.

H4: We hypothesize that firms through their operational activities are able to bear financial risk and that the external financial activities decrease the total financial risk of the firm. This hypothesis has as a corollary that real financial linkages exist and can only be investigated under this assumption.

Unfortunately, we will not be able to test these hypotheses in a formal manner. First, H3 and H4 are not mutually exclusive, being different by definition. Second, when measuring the change in financial risk over time, we might observe an increase (supporting H3) which can be offset by increasing operative risks (supporting H4). Furthermore, a formal test would require a quantitative study of a large number of Swedish firms and the development of their financial risk over time. As we will see (chapter 6 below), this is an intricate and time consuming question.

An alternative would be to test either H3 or H4 as joint hypotheses simply assuming that either real-financial linkages exist or not. Such a procedure is not unknown to the field of finance: many tests of phenomena in the capital markets are made under the assumption of a specific asset pricing model being valid. In our opinion, this requires that one of the 'joint' hypotheses is fairly well established

within the field. In our case, there is no general agreement upon the macro-setting and its implications for real-financial linkages. We therefore refrain from stating the problem as a joint hypotheses testing.

Instead, we restrict our study to an analysis of the development of a firm's financial exposure over time. Here we have a situation where the empirical content of the issue takes priority over the formal testing of our hypotheses.

D4: We will, in the case study, study the change in the financial and operative risk of a firm where we for the operational risk assume that industry structure affects the pricing of the firm's products in such a manner that fluctuations of the real exchange rates will not be passed through totally to the customer.

4.4.4 Taxes

Taxes are price distortions imposed on economic agents by governments. These distortions will lead to the pursuit of tax minimizing deals. General Electric's financial intermediary General Electric Credit Corporation (GECC), is said to have financed large parts of the aircraft used in commercial aviation in the U.S. and large parts of the U.S. railway fleets. This is reported to have been done by the use of investment tax credits which could be offset against the parent firm's profits. The question is why these activities should be performed by financial intermediaries controlled by the parent firm and not as investor leases.

Brick, Fung and Subrahmanyam (1987) show how these deals in the U.S. context only have to be conducted through a manufacturing- or retail-linked financial intermediary if nominal interest rates are low.

They conclude their study:

Our analysis suggests that tax considerations alone would not completely determine the choice of direct

versus indirect leases and, thus, fail to fully explain the existence of intermediaries in the equipment leasing market. This is especially the case when interest rates are high as they have been in the 1980s.

... in a world with default risk, economies of scale may exist in structuring specialized fixed loan contracts such as an equipment lease. Hence, equilibrium lease rates should reflect not only tax considerations but also the cost of managing cash flows in a world with interest rate uncertainty and default risk'

(p. 59)

Without prior knowledge about the legislation governing the tax treatment and deduction of equipment leased, we cannot state any a priori expectation about the situation in Sweden. These issues are difficult to model as they require thorough knowledge about the tax laws and a good tax lawyer's ingenuity in order to be detected.

D5: to study to what extent leasing is performed and for whom. In the case studies, we study to what extent tax benefits enhance the ability of Swedish firms to extend financing. We also examine why leasing is performed by the firm itself instead of as an 'investor-lease'.

4.5 'Pure' Financial Service

We have seen that some of the large firms in the U.S. have started to market their own CP-programs and also that they have participated in management buy-outs, to the extent that General Electric has bought its own investment bank. Most of these activities seem to be related to the issuing of the company's own securities and the handling of the companies own trading of stocks and other financial instruments. We do not know how much of the activity of these acquired financial firms is supported by parent companies in some way. It would be surprising, however, if there existed any other advantages of joint production besides the common use of econometric and forecasting abilities and joint use of computer capacity.

Good empirical evidence or a theory for why firms conduct pure financial service activities seem not to exist.

D6: We will in the case studies, look for economies of scope between core activities and 'pure' financial service activities of manufacturing firms. Furthermore, we want to get descriptions of which 'pure' financial service activities are conducted by some Swedish manufacturing firms.

The hypotheses and research directions are summarized below:

Hypothesis

- | | |
|----|--|
| H1 | Larger firms lend to smaller firms due to asymmetric information; |
| H2 | Computer capacity can be used by the financial departments when lending; |
| H3 | Firms can circumvent regulations in segmented markets and gain by doing so; |
| H4 | The operational activities give the firms a natural hedge in their financial operations; |

Research directions

- | | |
|----|--|
| D1 | Economies of joint production in financial intermediation; |
| D2 | Do international financial units lend money to third party? |
| D3 | Identify areas where regulations can be circumvented; |
| D4 | Study changes in the financial risk of a firm; |
| D5 | The extent to which leasing is performed on the basis of tax advantages; |
| D6 | Economies of scope with 'pure' financial service. |

4.6 The research approach

We will conduct this work as a multimethod study, using several methods and different sources of data. A discussion of the synergies inherent with the use of a multimethod will be discussed and the implications for the validity of the results has to be spelled out. The advantage and drawbacks of the different methods used will thereafter be discussed. Thereafter, questions of demarcation will be discussed in the

context of case study-methodology discussion.

Our initial attempt to limit the scope and generate ideas about the subject has left us with a mixture of different types of questions. Consequently, the result of this work will be a mix of description, suggestions of hypotheses to be tested and, hopefully, the corroborations of some hypotheses established in the previous section.

The questions posed has been divided into two types: hypotheses and research directions. This is due to a qualitative difference between the categories. The hypotheses studied can be said to be supported by received theory as well as empirical observations and seem to be falsifiable. The second type comprises suggestions that are either not supported by received theory or not observed empirically. Those will be treated as research directions.

The validity of the result will of course be primarily be determined by the method used as well as the 'construct validity' of any measures we apply when testing our hypotheses or when exploring the research directions. Nevertheless, we argue that there are synergies of validity when using a multimethod approach.

This is related to what Cambell and Fiske (1959) discuss when they study the testing of individual differences in psychological variables, not observable directly. To them the 'construct validity' of the measured variables as to the individual characterisitic to be observed can be tested by using several traits to measure the theoretical notion. The authors also argue that multi-methods can be used to measure the same variable (p. 103). This approach has been named 'triangulation', a term borrowed from navigation. Put simply: in order to obtain information about a specific phenomenon, one could use different perspectives, and gradually obtaining more exact information about the study object. Our study, though, is not aimed at using different methods to study the

same questions. Instead it has become a multimethod study, corresponding to the different level of questions we want to answer. Nevertheless, some of the data will overlap and we obtain, partially, some of the advantages of a multimethod approach by this design. These advantages will be outlined below.

The results obtained in the different studies will help us interpret the results of the individual parts. We will conduct three basic research efforts: gather some publicly available data in order to complement our descriptive findings in the survey, we will conduct some case studies on firms treasury operations, and we will mail a survey to a set of Swedish firms.

External data will enable us to check the statements made in the case studies for internal consistency, thereby increasing their reliability. Furthermore, it makes it easier to check upon survey data or, if necessary, to complement it. The content validity of the case studies' and survey's descriptive parts will increase. The descriptions in the cases, on the other hand, will possibly help us to interpret the findings in the survey.

In order to gain the positive synergic effects of contrasting results from the different parts, we will conduct the major analysis of both the case studies, the survey and the collected, complementary public data in the final chapter. We now turn our attention to the different methods used.

4.6.1 The survey

Some of these hypotheses can be explored with the help of a survey, sent to large Swedish manufacturing and transportation companies. In this way information not otherwise available to us is obtained (Alreck and Settle, 1985 p. 3). Through the standardization of the survey we can reach a substantial amount of firms in Sweden which we could not obtain otherwise through interviews etc., i.e. the survey

method is of importance when we collect descriptive data about our set as well as when we want to test hypotheses.

Obviously, questions need to be put in such a manner that the respondent answers the questions that were intended (having high 'construct validity'), but also have to be fairly easy to answer and the amount of information which has to be provided or compiled by the firm has to be fairly low in order for the survey to attain satisfactory return rates (having high 'content validity').

For those questions for which we can collect data, the survey provides us with a tool for testing hypotheses and it will help us with the collection of descriptive data. A discussion of the details of the survey's construction will be given when we report the survey findings in part C.

The survey has some methodological disadvantages: not everyone will answer, i.e. we might get a distorted picture when seeking to describe the entire set of firms. The truthfulness of the answers is also difficult to assess from the outset; i. e. we might run into "big foot in a sample" problems.

The respondents know that they are involved in a public survey, and that the results of the study might affect their own activities, albeit in the long term. This is a problem of internal validity of all types of study where we might encounter strategic behaviour from the respondents.

4.6.2 The case method

Many researchers in different fields use this method, studying, in detail, one or several objects. The historic method (see e.g. Torstendahl (1971)) is basically a longitudinal study of certain aspects or objects of reality. The study of what happens after e.g. a specific economic shock in a certain country, could be considered a case study. Work in economic history is often used in theoretical

discussions. One example would be the kind of importance the banking structure has in the economy. Temin (1968) or Friedman and Schwartz (1963) both argue against received theory by using historical examples. Macroeconomics therefore occasionally uses case studies as a methodological tool.

The above types of case studies could be described as longitudinal and historic in their perspective. Some of them seem to consider the study object and its development as important in itself, (in our view primarily 'pure' historic studies) or they related them to theory and possibly try to falsify it or at least to raise questions about their specifications, e.g. Friedman and Schwartz (op. cit.).

Other types of case studies are longitudinal and contemporary. Typical examples in this vein are clinical psychology's case-reports or in the field of management study, participatory or clinical case studies (see e.g. Normann, 1975).

The problem with case studies as a methodology is that their use cannot be discussed without discussing the context they are to be used in, as well as the researcher's views of the demarcation of scientific from non-scientific endeavors. A common critique has been that case studies can not create knowledge.

An immediate response to such statements is that as long as the object or phenomenon to be studied is important in itself, case studies create knowledge. The problem arises when theory is to be related to the single case. This can be seen as a problem of demarcation: two principle standpoints are discernable. Either method is used as demarcation for what is to be considered as scientific knowledge; or different methods are seen as constituting parts in a scientific process where theory-building constitutes one of the parts.

If the former view is adhered to, the question becomes whether the 'case method' can be viewed as a one for testing a hypothesis. Hägg and Hedlund (1979, pp. 138-140) claim that this is possible. A one-case event: e.g. Popper's well-known black swan can falsify the theory of 'all swanes being white'. Unfortunately, social science differs from science in that we are seldom able to control all background variables, and that we are less able to obtain clear-cut causal relations between the assumed cause and the assumed outcome. The question is whether one can observe the causality while it is occurring.

In our opinion, the key issue in this debate is the ability delimit a case study. When we are not able to rely on the law of large numbers to cancel out random variation, as is the case in statistical inference, we must be absolutely certain that we control all aspects and contingencies when we use the case method to falsify a theory. As we in our particular case have no clear-cut theory to start with, it will become difficult to use case studies to falsify the hypotheses specified.

If knowledge is viewed as being built up by a chain of research activities - theory building, theory testing and application of theory - the 'case method' can be applied differently. It can be treated as 'building explanation' (Valdelin, 1973 or Yin, 1981). An alternative application would be to use case-studies to apply theory to specific problems. The requirement of the latter, in our view, should be that the application is fairly accurate according to theory, i.e. internally consistent.

The role of the case study in theory building should be discussed more in detail. It is principally a question of internal validity of the observations and conclusions drawn⁷. Miles (1979) severely criticizes the use of the case method

⁷ Unlike the previous discussion of cases capacity to test theory, which concerns cases' external validity.

when studying organizations as they could not be expected to "transcend storytelling" (p. 600). There are two basic problems: first, it is difficult to systemize the collected data into specified models where unmotivated field workers do not know how to handle the data analysis; second, a problem arises when respondents object to the case study results and try to rewrite history.

Yin (1981) tries to answer Miles' criticisms by claiming that case studies are not 'one-source' studies and that the study can be structured in a manner that includes several independent data-points. He also wants the researcher to have "some sense of what the case study is all about" (p. 61) in order for the researcher to identify meaningful events. This is at odds with the notion that the case study researcher should approach the studied object without any preconceptions about the phenomenon he studies.

Yin instead wants the researcher, when he tries to explain something with case studies, to use different alternative explanations as regards the possible reason for the firm to behave in a certain manner. In these cases the researcher tries to observe the causality (Hägg and Hedlund, 1979) and does so in detail and over time. In our opinion, at least a 'Hume'-kind of causality can be obtained for the specific case which will help in theory building.

As long as the case study not is intended to test theory, we adhere to the view that there is no need to control for all contingencies. We decide to go one step further and formally pre-structure the case studies in terms of research directions, thereby limiting the amount of data to be handled.

As Yin noted, another way to increase the internal validity of the case method, is to use multiple information points. We will therefore try to obtain as many independent data points as possible in our case studies.

A more severe problem, as Miles suggests, could be that the firms want to distort the picture of the case. The only possible defence for this is to study well-reputed firms, looking primarily for cases where one could expect to find ethical practices. This will naturally decrease the generalizability of the study, only providing us with explanations which are acceptable in a societal sense. We nevertheless feel that as the purpose of the case study is more to build evidence and attain possible explanations, this diminishing power of the study could be accepted in order to avoid problems with firms rewriting history.

A further control which could be built in is a contrasting case; firms not having the studied practice are studied and cross-case comparisons are made.

Nevertheless, the case method should enable us to gain new insights. Recently e.g. Jensen et. al. (1989) promote the use of 'clinical', case based research in finance, in order to both 'enrich professional knowledge' (p.4) and 'stimulate new high-quality empirical and theoretical research' (ibid.). We hope that part A and B will make contributions in these directions.

4.6.3 Data collection of external data

To the extent that we can find published data about the extent of financial holdings etc. of Swedish firms extend data will be used. Such data is mostly produced for some specific reason and it is unlikely that the data will contain exactly the type of information needed.

4.7 The studies

We above have defined a set of questions which have to be answered by the empirical studies. The questions will also determine the kind of companies we intend to study. In section 4.7.1 - 4.7.3 we will discuss which questions the

different studies are designed to answer and the preferred choice of firms to study.

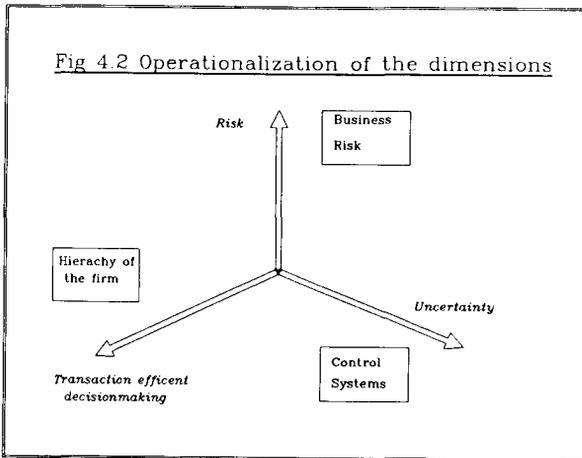
The case studies will be divided into two parts, the first consisting of studies of three firms, and the second, Part B, consisting of a study of the changing financial risk of one firm, complemented with a fairly elaborate discussion of how financial risk could be measured.

These studies are somewhat different in their scope, but they are connected by a common theme. In Fig. 4.2, we have depicted three dimensions of a firm. Basically, it constitutes the direction the theory of firm took following Knight's (1921) essay on risk, uncertainty and profit, as discussed above. This is not a model of the firm. Instead, as we already have stated in chapter 2, two of these directions have been used to describe the firm, and one has been used to describe the non-significance of the firm, unless other factors are added to the model of the firm.

We know from Arrow and Debrue's work that a firm's future cash flows can be described in the time and state space. Uncertainty is linked to the question of what the firm's cash flow will be in a specific state. The essence of Knight's work is that the ability to make good projections of this uncertain future will enable the entrepreneur to earn above economic rent. We previously showed how this could be true in a world with asymmetric information and incomplete markets, and also made the remark that this would result in the firm trying to establish systems to predict the future outcome: to create information systems to get insights into the financial situation at various stages as well as the actual financial situation. It is also possible that the treasurer would want to implement new systems in order to decrease uncertainty and enable him/her to handle new risks.

Furthermore, it seems reasonable to claim that if firms, in some aspects are transaction cost-efficient decision makers

and producers, a hierarchy will exist within the firm. People on different hierarchical levels will have to interact and be evaluated. From the treasurer's point of view, this will be of interest in at least two areas: first the people in the industrial units will through their industrial activities affect the financial riskiness of the firm, and should therefore have to take responsibility for their actions. On the other hand, given that there are opportunities to sell state contingent claims, the treasurer would like to handle these issues. Second, the treasurer needs the input from the industrial units when obtaining the data needed to transform uncertainty into risk. We would presumably be able to find some interaction between these factors. The prime target for the study of the different dimensions is described in Fig. 4.2



What we have presented here is a way to analyze the case studies, to link them to the theory of the firm. It is neither an attempt to present a 'new' theory of the firm, nor is it a normative statement.

The way the financial activities affect the business risk will be the main theme of the second part, Part B. In Part A we will discuss among other things the uncertainty reducing devices and the interaction of the control systems with the

hierarchical decision-making within a firm. Some of these topics will recur in the survey. We will not try to fill these dimensions with any normative contents of what the preferential way of organizing treasury activities is, nor will we discuss the optimal systems for reducing uncertainty, but we will propose one approach to how to measure the uncertainty.

4.7.1 Part A: The financial departments - case studies.

The financial departments we study conduct different kinds of financial activities. The studies aim at giving us further information about the possible synergy effects linking the 'pure' financial service, financial intermediation activities and the operational side of the firm's operations. Furthermore, we will see in what manner the treasury units interact within the firm and in what way the treasury department tries to reduce uncertainty.

Arbitrage, segmented markets and tax arguments (D3, D5) will be studied in order to get a more detailed picture of what might entice the firm into conducting financial activities.

We would like to search for any joint costs and synergies between operations and long term financing of the firms (D1). The case studies will give a historic view of the development of the financial activities and link them to changes in the financial environment. We will also study why the firms have formed financial intermediaries abroad (D2). Furthermore, we want to study what synergies there are between the 'pure' financial service activity of the firms and their core activity (D6)

When selecting the firms we would like them to fulfill certain criteria. We wish to study companies with a broad range of financial activities and those with a more limited range. Furthermore, we would like to study firms having a lending portfolio directed to its customers and to entities otherwise unrelated to the firm. As discussed above, it is

important to study firms which have a reputation for having their financial operations in good order, so as to avoid the problems mentioned by Miles (1979) with companies wanting to 'rewrite history'. This lessens our ability to make generalizable statements based upon the case studies, but we believe that there remains a problem of 'positive adverse selection' connected with case studies. Only those firms who know that their activities are acceptable will agree to take part in a case study.

It would also be useful to study a firm with a low degree of external financial activities and a good reputation. This 'controlling' case would enable us to detect any particular differences from the firms with a financial department acting as a financial intermediary compared to one without these activities.

It is evident from this description that we will not be able to satisfy all criteria when selecting the firms we want to study, especially as the study requires a large degree of cooperation with the firms, and the number of firms willing to engage in this kind of activity is probably fairly low.

4.7.2 Part B: The real linkages - risk handling with a externally active financial department

In the case study, we want to measure the change of the firms' financial exposure over time (D4). The handling of the issue of how the financial activities affect the financial portfolio of the firms requires both theoretical considerations as well as a detailed empirical study. The riskiness of a firm's operative cash flows is not well handled in the financial literature: often the authors lump the risks together under a general description as 'economic' or 'operative' exposure, but refrain from modeling the impact from a specific macroeconomic perspective.

In chapter 6, we discuss how real-financial linkage might affect the firm's financial decision and create a yardstick

of a firm's financial exposure given a certain macroeconomic setting. The empirical findings are presented in chapter 7.

A caveat is necessary: the results which we attain will not give more than an indication of whether it is possible to reduce the financial risk of the firm while conducting financial intermediary activities towards external entities.

4.7.3 Part C: A survey

The survey will be sent to the 50 largest Swedish manufacturing and transportation firms in order to test, the hypotheses 1-2 and explore some issues related to hypothesis 3/4 mentioned above. It will, furthermore, give us insights into the way the firm organizes its financial departments, what financial instruments are used when conducting financial operations, and in what manner the banking sector supports the firms with some liquidity enhancing functions. We will also attain information about in what manner 'over'-liquidity explains the outwardly-bound financial activities of the manufacturing firms in Sweden. Furthermore, it will give us some quantitative data as to the extent of financial intermediation conducted by non-financial firms in Sweden. The survey will be supplemented with the collection of public material in order for us to give a description of the volumes the firms intermediate.

Part A

In this part, we give a description of the regulatory framework within which Swedish firms had to work during the studied period. Furthermore, the results from three case-studies on three Swedish firms' treasury departments are reported. Empirically, we will in this section concentrate upon I) the Directions D1-D3, D5 and D6 II) the organization of the Treasury's activities and III) the interaction between the financial systems and internal management systems.

From the case studies, we also will gain an insight into how the firms use the new financial instruments and how risks are shifted between market participants.

CHAPTER 5

The Financial Activities of Three Swedish Firms

5.1 Introduction

This is the first of two parts reporting the case studies performed at three Swedish firms' treasury units. We studied these units during the period 1986-1989, and we concentrated on the situation during the end of 1989. Part B reports the results from the D4 of the case studies, but is treated separately for two reasons: first, the set of firms is different and, second, and paramount, the case studies require the development of a yardstick which will be reported in this context.

We will in this chapter report our findings as regards directions D1-D3 and D5 and D6, but a brief description of the regulatory framework for some financial intermediaries and producing firms will be given in the Swedish context. The exchange rate regulation in force during the studied period is also discussed. Tax aspects of company taxation will also be reviewed briefly. These discussions are supplied in order to facilitate understanding of the cases. Our findings are presented for each of the companies, one by one. The chapter will be concluded by a summary of our findings and our conclusions will be drawn.

5.2 Regulations and Taxes

It is important to be aware of the regulatory and tax framework within which Swedish firms have to conduct their

financial activities. It is of course only possible to give a short overview of those regulations we perceive to be of importance. First, we will in this section discuss the exchange rate regulations and the regulation of financial intermediaries. Furthermore, the taxsituation of Swedish multinationals will be discussed.

5.2.1 The exchange rate system

The maintenance of exchange rate restrictions after the introduction of convertability of currencies and the increasing liberalization of both national and international financial markets has to a certain extent become idiosyncratic.

The Swedish exchange rate has been pegged to the value of a trade weighted basket of currencies since the early seventies. The exchange rate is allowed to fluctuate within a band of the so-called 'kron-index', and the Central Bank has to intervene if the exchange rate threatens to leave permissible values. The combination of fixed exchange rate regime with exchange rate regulation means that there are three basic methods to defend the pegged value of the SEK. (1) The Swedish Central Bank could sell or purchase the krona, thereby increasing or decreasing its foreign currency reserves, (2) the Swedish government could use a change in its fiscal policy in such a manner that the market's expectations about the SEK exchange rate are altered, and (3) the Central Bank can intervene in the domestic capital markets and change the interest rate in such a manner that the exchange rate goals are upheld. According to a government commission investigating the effects of the exchange rate regulations, the latter method has been the means the Central Bank used when the Swedish economy had balance of trade problems (SOU 1985:52, pp. 263-264). To some extent, the real interest rates were perceived as higher in Sweden compared to the interest rates in other industrial countries.

The Swedish capital markets, the commission remarks, is not totally segmented from the international markets. There are possibilities for multinational firms and others to create substituting capital movements (p. 266). The authors did not elaborate on how these links might be established.

Oxelheim (1988) in a statistical study of the financial integration between Sweden and the non-Swedish capital markets, found evidence of an increasing integration of the Swedish interest rates' correlation with foreign interest rates for the studied period (1979-84), but that the real interest rates seemed to be less correlated over time (pp. 340-341). The author does not elaborate on how this is achieved, but the Swedish exchange rate regulations must have made it easier to maintain a different interest rate level in Sweden compared to other countries.

5.2.2 Exchange rate regulations⁸

After the outbreak of war on a European scale in 1940, the Swedish government imposed severe restrictions on financial cross-border flows. These restrictions were based upon '1939 års beredskapslag' a wartime law that since then has been extended by the Swedish parliament. These restrictions have affected most aspects of financial industry. We will here discuss those restrictions we believe are of importance in the present context.

Swedes⁹ are forbidden to make portfolio investments abroad, i.e they cannot make purchases of financial instruments denominated in currencies other than SEK. Nor are they allowed to maintain demand or time deposit accounts abroad.

⁸ The Swedish exchange rate regulations were in effect lifted in July 1989.

⁹ Formally, persons having their residence in Sweden are classified as 'valutainlänning' and are subject to the above mentioned currency regulations. Firms incorporated in Sweden are 'valutainlänningar'. Swedes will in this context be used interchangeably with the expression 'valutainlänning'. This segment is based upon SOU 1985:52, pp. 31-41.

Payments in foreign currencies are generally permissible for trade-related transactions as long as their terms of trade are in line with normal industry standards.

Foreign direct investments (FDI) could be made by Swedes but they were subject to the regulatory approval of the Swedish Central Bank, which during the period studied only made inquiries into whether there was an investment made, not probing whether it was of interest for Sweden or not. FDI's normally had to be financed by borrowing abroad; initially these loans had to have a maturity of at least five years before they were repaid. At the end of the studied period these restrictions were lifted. From March 1987 firms were allowed to take loans with a maturity of one year or half a year.

Swedish firms controlling subsidiaries abroad were, according to the 'Höganäs-villkoren', not allowed to retain more money with the foreign subsidiaries than is necessary for the normal operations of the firm or for the expansion of the subsidiary's business.

Until 1976, Swedish firms were not allowed to borrow money abroad to finance their activities. Firms and some municipalities were later encouraged to finance their activities with loans from abroad. Foreigners are not allowed to own SEK denominated fixed income securities, but can, to a limited extent, own Swedish shares of incorporated companies¹⁰.

¹⁰ In 1916, a law, 'Inskränkningsslagen' forbade foreigners to purchase real estate in Sweden. In order to prevent foreigners controlling real estate via firms incorporated in Sweden, the law also forbade firms to own real estate in Sweden, unless they in their act of incorporation included a paragraph which maximized the foreign holding of votes and capital to a certain fraction of the equity. In 1934, the maximum voting power foreigners were allowed to have was set at 20 per cent and the maximum amount of the equity foreigners were allowed to hold was set at 40 per cent of the total share value. In practice, firms created two different series of shares, one which foreigners were

Swedish banks can apply for 'currency bank' status at the Central Bank and would then be allowed to trade in non-Swedish currencies. They are also allowed to borrow money abroad on behalf of their Swedish clients. The Swedish firms who conduct cross-border financial transactions must go through a currency bank. Some of the control tasks of the Central Bank were also delegated to the 'currency banks'. The 'currency banks' are basically only allowed to conduct business for clients, and have to keep their currency exposure within fairly tight limits.

5.2.3 Regulations of financial intermediaries

Swedish financial intermediaries are regulated by the Swedish Parliament, 'Riksdagen'. The Swedish Securities and Exchange Commission, 'Bankinspektionen', then oversees that the banks adhere to these regulations. Lately, the Bank Inspectorate, on less than obvious constitutional grounds, has started to issue 'advice' to the banking sector, which it more or less seems to consider binding for the banking sector. The Swedish Central Bank also has a regulatory function vis-à-vis the banking system. It gives banks a charter to conduct exchange rate related transactions and payments ('valutabanker'), and oversees that the exchange rate regulations are followed. Furthermore, the Central Bank's policy committee decides which level of deposits banks have to deposit at the Central Bank escrow accounts in order to secure its liabilities.

We will in this context only discuss regulations of the commercial banks' lending activities and regulations regarding finance companies. There are several different organizational forms for financial intermediaries in Sweden besides these two, but the regulations discussed could be considered the model for most other regulations regarding financial intermediaries.

'free' to purchase and one 'restricted', which only Swedes were allowed to purchase (Rodhe, 1978, pp. 145-149).

5.2.3.1 Commercial banks

Swedish banks are given a charter, 'oktroj' by the Swedish government, which probes whether the new venture will contribute to 'the common good' or not; these charters are generally granted. Unlike the situation in the U.S.A., banks in Sweden are universal banks, but unlike the banks in West Germany they are not allowed to have any holdings of industrial companies' shares or of real estate¹¹ (SOU 1984:27, p. 132). There are no geographic boundaries to the activities of a Swedish commercial bank.

Commercial banks' lending was during the studied period affected by at least four different regulations in such a manner that the regulations might affect the prices commercial banks charge for their loans. Of these, one was abandoned in 1983. Commercial banks were until then forced to invest in government bonds. The so-called liquidity quotas determined the level of government bonds banks had to invest in, in relation to the total level of business the bank conducted. Furthermore, banks must deposit a percentage of all liabilities on a non-interest bearing escrow account at the Central Bank. At present, an amount corresponding to four per cent of its total liabilities has to be deposited.

A bank also has to maintain ten per cent of its assets invested in liquid assets ('kassareserv'). This is only of economic interest if the banking firm perceives the assets in which it has to invest in as restrictive, i.e., that the bank, given a free portfolio choice, would choose a lower level of investments in assets which are classified as liquid by the regulators¹².

Finally, there are capital adequacy requirements for the commercial banks. Commercial banks' placements are classified

¹¹ Swedish banks are allowed to own the building in which they have operations.

¹² See SOU 1988:29 p. 246 for a list of these assets.

in four different categories. These categories are linked to a percentage of equity which has to support the placement. The lowest risk category does not need any capital to support the activity; the next level requires one per cent of capital, the following four per cent and the most risky engagements require eight per cent capital to cover the riskiness of the activity.

The equity used to cover the riskiness of a placement must yield a return, and the bank therefore has to charge a premium over its refinancing costs when performing this kind of activity. The same goes for the money the bank has to deposit at the Central Bank, which does not pay any interest. It increases the refinancing costs compared to the refinancing costs of other actors, but not for all kinds of funds; only banks can accept demand deposits and the cost incurred due to these deposits is probably borne by the depositor in the form of lower interest rates paid on deposits than otherwise would have been the case.

5.2.3.2 Finance companies

Finance companies are supervised by the Bank Inspectorate which keeps a register of authorized finance companies. It has been discussed in what manner the finance companies have been treated by the regulators in comparison to the banks. In our opinion, this issue is not clear; some regulatory differences are positive for the finance companies in comparison with those for the banks while others are negative. Finance companies were not forced to deposit money at the Central Bank until 1987. This might have given them a competitive edge vis-à-vis the banks for certain types of financial activity.

Furthermore, the finance companies have not been subject to a system of differentiated risk-adjusted capital adequacy regulations. Instead, they are subject to restrictions on the total level of activities which can be supported by equity, without risk differentiation considerations being made. They

are also allowed to perform some activities which the commercial banks are not allowed to engage in, like leasing, credit card operations and factoring. On the other hand, finance companies in Sweden are not allowed to issue negotiable IOUs in the capital markets (SOU 1988:29, p. 356); they have to issue other types of non-negotiable instruments, which are traded at slightly lower prices than comparable issues of bank IOUs. To what extent the difference is to be explained by lower liquidity of the papers, 'marknadsbevis', by higher risks in the operations of finance companies, or by a combination of both factors is unknown to the author.

5.2.3.3 Producing firms' financial activities

There exists no particular body of regulations applying to the financial activities of non-financial firms. We have found some passages that affect the outwardly directed financial activities of non-financial firms in the regulations for other types of financial intermediary.

In order to accept demand deposits, the firm needs a charter, which it cannot get. There has been some debate about the mixing of real activity and the accepting of demand deposits. A firm can own both banks and other non-financial firms¹³. Furthermore, firms have to get authorizations to act as finance companies unless their only external financial activity is to finance the sales of the firm's own products, or if the company performing the sales supporting financing is part of a group marketing the equipment sold, and does not refinance itself from the 'public'. These changes were implemented with the amended law regulating finance companies from 1980¹⁴, which consequently has been in force for most of

¹³ In SOU 1988:29, Part 2, p. 159-161 these issues are discussed at some length, but the only kind of restriction the commission wants to impose is that insurance companies should be prohibited from owning financial intermediaries. Furthermore, the committee wants to restrict the total per cent of voting power a single owner is allowed to control to 10 per cent. When this is written, it is unclear whether these proposals will become law.

¹⁴ FiL: lagen (1980:2) om finansbolag.

the studied period (SOU 1988:29 Part 1, pp. 358-360).

Consequently, there is currently a possibility for non-financial firms to acquire most sorts of financial intermediaries, including stockbroking firms, banks, finance companies and financial service companies. Due to the need for a government charter, we are less certain that producing firms will attain these if they would like to form deposit-taking institutions. The government commission studying the structure of the Swedish financial industry made some remarks indicating that official support for this kind of activity is lukewarm. (SOU 1988:29, Part 1, pp. 159-161)

5.2.4 Taxes

A company that creates an organization which involves non-domestic legal entities will have its income taxed according to different nations' taxlaws. This creates problems as to how the income of the firm will be taxed and it might affect the legal structure of the group's units as well as the direction of flows of funds within the group.

Furthermore, there might be some advantages in the area of leasing for manufacturing firms to handle these transactions as compared to financial units. This issue will only be discussed in the case studies, in accordance with direction 515.

¹⁵ We marginally encountered airplane leasing in our cases, but no ship financing. There have lately been substantial activities within this area. The main tax advantage, until November 1989, seems to have been that the lessor was able to make substantial deductions against his operative profits when signing a contract to purchase a vessel or an aircraft. We will not treat ship financing, as these in general took place after the time period of interest to us. Furthermore, they are constructed in such a manner that the financier of the vessel becomes, at least to a certain extent, the owner of the vessel. Aircraft leasing activities have not been picked up by our survey to a large extent, mostly because they have generally been conducted by several parties in special legal entities.

All major Swedish firms are involved in international activities, which are often conducted by foreign subsidiaries; the Swedish companies are consequently affected by three different sets of tax laws. First, the Swedish tax laws with regard to the taxation of income accruing from Sweden and income accruing from abroad which is directed to the Swedish unit. Second, the taxlaws in those countries in which the firm has subsidiaries, and finally, the tax treaties between countries in which the company has operations.

We can in this context not discuss in details matters regarding in what manner taxes affect the legal structure as well as operative decisions of Swedish firms, but we will give a brief overview of the problems associated with taxes.

Swedish groups are not taxed as a unit. Instead, taxes are paid by each single legal unit of the group. If this principle was strictly adhered to, situations might arise where some units of a group pay taxes while the group as such is making a loss.

The structure of the foreign operations will naturally be affected both by the national tax laws and tax treaties between countries in which the firm has its operations.

In principle, Swedish taxlaws regarding internal pricing between group companies adhere to OECD-standards, with a requirement of arm's-length pricing. The Swedish tax authorities do accept that too much tax is paid in Sweden due to unrealistic pricing between group companies (§43 1 mom KL). On the other hand, there is a complex set of court cases which defines the reach of Swedish tax authorities when correcting the pricing of internal transactions between Swedish and foreign units when it is perceived that the Swedish unit has reported too low results due to the pricing of internal transactions made between group units. When reviewing these cases, Arvidsson (1988) states that Swedish

units in general have not been allowed to pay too high interest rates on loans for money borrowed by foreign units of the group, nor are Swedish units allowed to charge an interest rate which lies below the going rate when lending money to units abroad. In some cases, such transactions have been accepted by the tax-courts when it has been clear that the firm as a whole would have paid the same amount of taxes if these transactions had not been performed.

The tax authorities have even argued that the level of debt to equity ratio could be too low for Swedish subsidiaries of foreign companies and that interest paid to the parent company to some extent constitutes a taxable dividend payment. This view was not upheld by the taxcourts in the Mobil Oil test case (p. 123).

From the point of view of the treasury departments, the tax laws will affect the pricing of internal financial transactions between the units. These prices should normally be in line with market rates. When conducting business with non-group companies the firm will not be restricted by such problems, the interest rates paid or received will not concern the tax authorities.

Swedish firms have several possibilities to postpone the taxation of income through the allocation of profits to openly reported untaxed reserves, which can later be dissolved when the firm loses money. Tax carry forward for losses in Sweden exist, but the advantage of these open reserves are that they can be considered to facilitate tax carry backwards. The firm can, if it makes money, set aside the profit until it encounters a loss. The basic instrument for creating untaxed reserves in Sweden has been the undervaluation of stock where the book value of the firm's stock can be reduced by up to 60 per cent (later 50 per cent). Another opportunity to postpone taxation is to allocate profits into a profit-regulation fund, where the firm could create an untaxed reserve corresponding to a

maximum of 20 per cent of the total wages and salaries paid during the tax year. The firm could also make larger depreciations of its buildings and machine value than would be economically warranted; depreciations would be shown in the P/L-account as separate items together with all other transactions regarding untaxed reserves. Furthermore, the firm could deposit money in investment funds, an escrow account at the Swedish Central Bank. Deposits made to these accounts can be used for certain types of investments when the government, mainly in order to stimulate business activity, releases the funds (Lodin et. al., 1984).

Thereby, and through growth in operations, it has been shown that Swedish firms have historically paid less in income tax than the nominal rate (SOU 1989:34, pp. 158-161 and pp. 437-451).

5.2.5 Concluding remarks

It is evident from the description above, that the Swedish capital and financial markets are somewhat different to the U.S., studied above. There seems to be reason to expect that the financial activities of the Swedish MNC could be used in a manner that increases the integration of the Swedish capital markets with the international. How this could be done, we a priori cannot tell. Furthermore, there might exist advantages emanating from the regulations imposed upon the banks' activities, which require some kind of costly deposit of money or capital requirement. As we have seen in the U.S. case, these regulations are not necessarily sufficient to create a competitive edge for producing companies when competing in the financial industry. It can be argued that the existence of a lender of last resort has made it possible for banks to maintain a higher leverage than non-financial firms. This is also likely to be the case in Sweden.

We hope that we in this section have been able to provide the reader with sufficient background to understand those segments below that refer to some aspect of the regulatory

and structural framework of the Swedish financial industry.

5.3 The Study

In this section, we will discuss the way we actually conducted the research and what kind of firms we contacted and the outcome of this process.

5.3.1 The choice of firms and the outcome

In the previous chapter a few criteria for the selection of the firms we wanted to study were set up: they should represent both firms with a broad range of financial activities and those not having such a broad range. Furthermore, we would like to study firms with a lending portfolio directed both towards customers as well as to agents otherwise unrelated to the firm. Finally, we wanted to study a control case, which has a low degree of outwardly directed financial activities.

During 1985 and 1986, newspaper reports of financial intermediary activities of firms were collected, which gave a picture of some of the most active financial departments. In order to attain knowledge about the reputability of firms' financial units, interviews were made with an industry analyst, academics in the field and a treasury consultant. This gave a list of possible firms. The chief financial officers of some of these firms were contacted during the autumn of 1986, and four firms agreed to participate: One large firm with extensive 'pure' financial service activities and good liquidity, a large firm with less 'pure' financial service activities but advanced external financial activities, a firm with low liquidity but with some external financial activities, and the control case, with a well-reputed financial department but with few external financial activities.

During early 1987, two of the firms backed out of the study: the largest firm decided to reorganize its financial activities, an endeavour completed fairly recently and did

not consider it possible to participate in the study during the reorganization. The controlling case company started to study whether to set up a finance company of its own, and, simultaneously, the firm acquired a major competitor. Management capacity was therefore strained due to the process of integrating the acquired firm.

Finding a replacement for the large firm provided difficult. Another firm with similar characteristics was contacted but declined to participate due to the fact that it regarded the complexity of its operation as prohibitive for a study of operational and financial exposure. We were, on the other hand, able to assure the participation of one firm that had a reputable financial department, but with less emphasis on 'pure' financial service activities.

We also had a problem finding firms that had few external financial linkages and reputable financial departments, and the search for a controlling case had to be given up. As will be seen in Part C, this to an extent can be explained by the fact that quite a few firms were pondering whether they should perform external financial activities or already had this kind of activities at the time of the study.

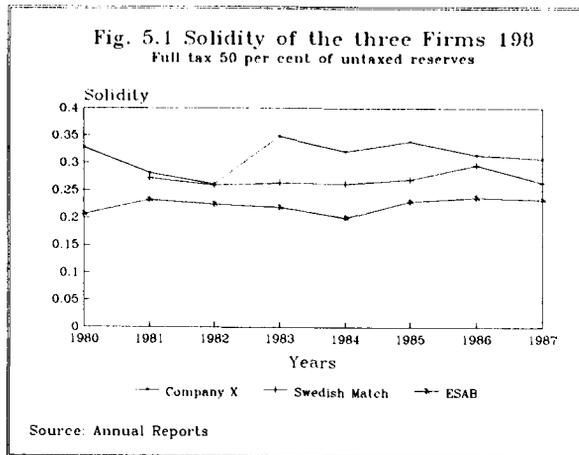
The set of companies to be studied, all with reputable financial units, consists of one firm with a good level of liquidity and a broad span of financial activities, and two firms, with a tighter liquidity situation and better focused financial activities. The strength of the balance sheets is often measured by the 'solidity', here defined as equity + 50 per cent of untaxed reserves divided by total assets. The development of this measure for the three studied firms is shown in Fig. 5.1

The set of companies lacks firms performing a wider range of 'pure' financial service towards unrelated agents, but some of the firms' activities are of this kind, as will be described below. The lack of a firm with a broad range of

activities in this section of the 'spectrum of financial activities' is a disadvantage to the sixth study direction.

5.3.2 The process

We conducted this part of the research as an interview study. The first interview was conducted with the CFO of the firm with the purpose of attaining a description of the organization of the financial department.



The different organization of the firms' treasury units made it impossible to design any structured interview guidelines for officers below the CFO level. A second interview of the CFO was pre-structured, see Appendix 5.1, but although this interview guideline contains the issues to be raised during the interview it was not sent out. This in order for us to attain as unbiased answers as possible from the person interviewed. The other interviews were made without a guideline, but with letters sent in advance specifying what kind of data was needed and containing a general description of the purpose of the interview. For longer interviews, memos were written and occasionally clarifications were given during telephone conversations. Some of the interviews have been complemented with written material, and in writing the

cases some outside sources have been used, but only after the firm management has validated its correctness and also, in one instance, complemented the description with further details. The final descriptions were reviewed for errors and misunderstandings by the finance departments.

5.4 ESAB

Gothenburg-based ESAB is today the world's largest world welding and cutting firm. It has, since the early eighties, followed a strategy of becoming the largest producer of welding and cutting related products, and has done so with a determination to become a low cost producer. For a company profile and historic data of the development of ESAB's operative business see chapter 7 below.

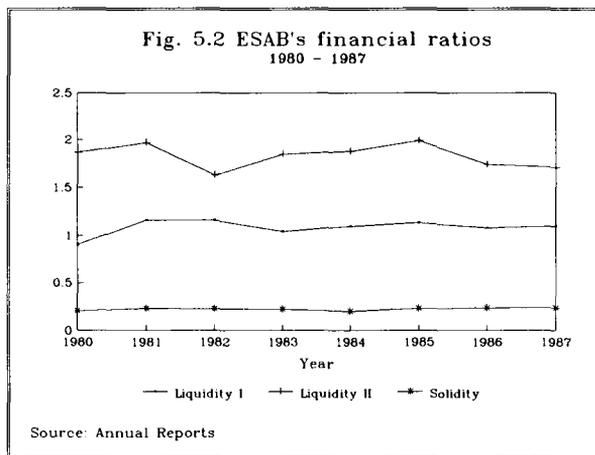
The description of the treasury operations is partial in the sense that we do not describe all activities of the treasury unit. We have concentrated upon the research directions and the organization of the treasury units with regard to their interaction with the industrial units and the division of responsibility between the units. Initially, we will describe the overall development in the treasury department during the period 1979-1987, and describe the organization at the end of 1988. We will go on to discuss the development of new systems and follow the different research directions. The description will be concluded with a summary of the external activities of the firm.

The description in this section is based upon interviews (see Appendix 5.2) and some material from ESAB's 1979-1986 annual reports.

5.4.1 Historical development of the financial activities

ESAB ran into financial problems as one of its main customer segments, the North European shipbuilding industry, stagnated and to a large extent ceased to exist, see Fig. 5.2 for details. The financial problems were preceded by an

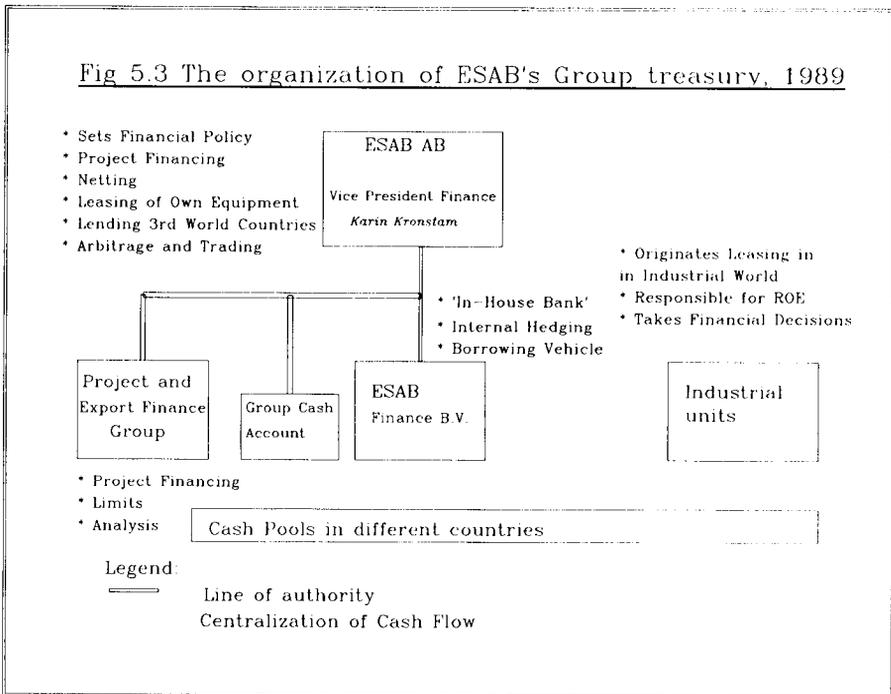
international expansion of the firm's activities. The firm had changed its character and as the financial problems in 1980 became apparent, ESAB got a new CEO who started a process of streamlining operations.



5.4.1.1 Reorganization

When ESAB's financial situation deteriorated in 1980 it was seen as necessary that the firm should streamline among other things the treasury function. An assistant treasurer was hired in November 1983 and in the autumn of 1984, Karin Kronstam (KK) joined ESAB, as Group treasurer reporting to the Managing Director of the firm. KK came from the municipality of Gothenburg, and was responsible for its treasury operations. During the late 70s, the Swedish Government operated with large budget deficits, and in order not to crowd out small borrowers from the domestic financial markets, the three major municipalities, among others, were forced to borrow money abroad. The municipality of Gothenburg made use of this opportunity and KK consequently already had experience from foreign capital markets when she joined ESAB. Several new systems and some new treasury units have been

created since the reorganization of the treasury department was initiated. The organization of the firm's treasury department is shown in Fig. 5.3.



The function and the creation of these units will be described below.

Four financial officers have joined the treasury group since then, all handling new activities and new systems. In 1986, KK was appointed Vice President Finance and in 1987 she became a member of the management board of the firm, emphasizing the increased importance of the firm's treasury activities.

During this period several changes were made in ESAB's financial routines, and we will describe the situation at the end of 1987:

5.4.1.2 New systems

Cash management has been a prime objective for the department and several projects have been concluded in order for the firm to reduce its working capital.

The new system to track the company's receivables is mentioned below, but the first system developed for the parent company was later handed over to the finance department.

In Sweden, ESAB introduced central cash-management for the Swedish subsidiaries, a Group account was opened with one of the Swedish banks, where cash was funnelled to a central account. In all countries, cash pools for the different countries' units were established. The different units were linked together to a European Group bank account established at a Luxembourg affiliate to a Swedish bank, as long as the local regulations allow for larger transfer of money between non-national bank accounts. This also was combined with a 'unit over-draft' facility, which enables ESAB to withdraw a pre-set amount in a number currencies.

In spring 1985, ESAB carried out an investigation of the Group's currency exposure. This led to a new strategy of handling the currency exposure, a new hedging policy and also a new system for calculating exchange rate exposure. One system to track the parent company's receivables was developed further and an entirely new system to track the receivables of the Group companies was introduced. This gave the treasury department increased possibilities to track the different entities' nominal exposure. The work to establish a system to measure total exchange rate exposure was done with the help of an outside consultant. This measure is a stock-oriented measure while the data from the system keeping track of the Group's receivables generates flow-oriented data. The changes in policy these studies triggered will be discussed in section 5.4.3 below.

A method for calculating the interest rate positions of the firm has been introduced, but a system integrating interest and exchange rate risk has not yet been installed, mainly because at the time of the interviews it was thought perceived that such systems command too high a price in the market to warrant a purchase.

Furthermore, the way export credits were granted was reorganized. Export credits are given after an analysis of political and credit risk and limits are set for each country and for regions of countries. In this way ESAB wants to reduce its credit exposure to different countries and customers.

In January 1986, a central netting system was introduced, located in Gothenburg, and the different firms were included in the system. After a year, all subsidiaries, except the Austrian, Portugal, United Arab Emirates and Brazilian, had joined the system. The netting system, as such, reduced the float for transactions for the Group. This was estimated to have reduced the financial costs within the Group by 2.5 to MSEK 3.0 per annum. Furthermore, the system increases the precision of the liquidity planning, decreasing the need for liquidity.

ESAB also tried to rationalize the handling of its bank relations, where the previous system with many small bank loans was changed. The loans were often originated by the subsidiaries acquired by ESAB. The financing is arranged by the finance department and it emphasizes large loans, also establishing a multitude of bank relations. Most loans in foreign currencies were repaid and replaced with borrowing in the capital markets.

ESAB's total net cost of financing has decreased from four per cent of the total turnover to 1.1 per cent in 1988 and 0.9 per cent in 1989. The turnover of capital has been

constant during this period. One per cent of the decrease is attributable to a decrease in the interest rates, and the remainder is due to increased efficiency in working capital management, most of it in the financial area.

5.4.2 Segmented national markets: (D3)

ESAB in 1985 started to be active in the money-, currency- and capital markets. The assistant treasurer who is responsible for, among other things, trading and arbitrage activities has been supplied with the necessary trading systems.

ESAB, the parent company, has the right to hedge the volume of trade it exports. The volume the firm can hedge is the amount the firm sells abroad, and this creates a situation where the firm might have an export-related volume which it can hedge. The parent company invoices its sales between its foreign subsidiaries in the local currency, and consequently almost the entire export is exposed according to the Central Bank definition of what is exposed. The subsidiaries themselves can, on the other hand, handle their exposure according to local regulations, which mostly accept hedging activities of the local subsidiaries. Some parts of the hedge allotment allowed for by the Central Bank are therefore, on a Group level, free for the firm to make dispositions for. These dispositions are made by the firm's treasury department. This has occasionally given the firm the opportunity to lock in a covered interest rate differential, between the Swedish lending rate and the foreign borrowing rate plus the hedging cost¹⁶. At the end of 1984, ESAB had MSEK 65 outstanding as a covered interest rate arbitrage; in 1985 this amount was MSEK 124 and in 1986 the amount was MSEK

¹⁶ These covered interest rate arbitrage cannot be arbitrated away - it does not have a money machine character - as it requires that the arbitrageur has the right to conduct the business in the first place. Therefore, this kind of arbitrage opportunity could prevail over time, although as we will see later, with a smaller and smaller spread that can be locked in.

149.

5.4.3 Financial policy

A change in financial policy was triggered by the study of the firm's exchange rate exposure; the firm changed its financial exposure of USD/DEM well before a major shift in the exchange rate's long term trend. The exchange of bank loans for lending in capital markets was described above.

The firm is allowed to borrow money abroad to finance its activities. When turning to the securities markets, ESAB initially used an underwritten Euro-Note facility. Nowadays the firm maintains a Euro-Commercial-Paper (ECP) program through which it borrows short term USD, but ESAB transfers both its interest rate base as well as currency denomination through swaps. The firm makes these swaps in order to profit from what it perceives to be the most favorable interest rates, given its expectation of the future development of the currency's value. The swaps are made with banks, not directly with firms.

There is a problem connected with the transformation of short term borrowing into long term lending. If investors in the short term dollar markets for some reason did not purchase ESAB's short term IOU's at acceptable prices, the firm would get liquidity problems. This could be triggered by many events: a major crisis of the financial system with a corresponding flight to high quality papers; a perceived decline in ESAB's creditworthiness; or political decisions that make cross-border transfers of money impossible, etc. In order to secure ESAB's liquidity in situations when ESAB cannot sell its IOUs, ESAB purchases credit commitments from banks for the short and medium term.

The assistant treasurer also engages in short term position-taking activities, where he takes short term positions in the markets, following a specific view of the future development of financial variables. These activities are perceived as

profitable, although marginally so, but it is felt to be of importance for ESAB to maintain a presence in markets to detect trends in financial prices.

The main problem with attaining profitability with short term trade is, according to KK, the transaction costs. Each 'round trip' costs an estimated SEK 2,000, which either requires large price movement or large amounts staked in order for the deals to be profitable. Nevertheless, short term position activities are perceived as necessary for the financial department to make the right long term decisions.

KK considers it possible to find currencies that give a lower cost of funding over the duration of a loan. The firm purchases currency analysis from outside sources but makes a final analysis of its own. The MD is involved in the decision-making as he makes decisions on the overall financial structure. The maximum volume of positions are determined after the Managing Director has given his approval. The stock of loans will not be changed due to a belief about the future development of specific exchange rates positions are taken on the margin with additional loans. These activities have mostly been profitable.

The daily operations are governed by limits where the assistant treasurer is given a limit and KK can approve deals above this limit up to a certain amount, after which the Managing Director has to give his approval. The MD regularly informs the board about the extent of these activities. The MD also approves a detailed description of what kind of financial papers the treasury units are allowed to invest liquidity in. The activities in Sweden are controlled by one financial officer in Gothenburg and the activities in the Netherlands by another officer in Utrecht.

5.4.4 Leasing and lending: (D5)

ESAB is involved in leasing on two levels: the firm finances some of its investment by leasing the equipment; and the firm

arranges leasing of its own equipment for its customers in some countries. Some loans are made to customers in the Third World.

5.4.4.1 Leasing of equipment

The parent company of the Group did lose money for several years during the beginning of the 1980s, and was therefore able to offset tax on profits arising in the Swedish units, due to remaining taxcredit which can be carried forward. ESAB started to lease equipment in 1983. Previously, the firm occasionally financed major investments by issuing bills of exchange which were guaranteed by the supplier of the equipment and had a long term to maturity. The financial officer responsible for leasing issues, Åsa Widerström, has described the activities.

Between 1983 and 1987, six separate deals were made, of which MSEK 28 could be specified. Furthermore, one sale and lease back of machinery has been conducted and some leasing agreements have also been signed. These agreements are so closely linked to the suppliers operations that they could be considered to be in a grey area between leasing and service agreement.

The agreements have a duration of between 12 quarters and up to 28 quarters of a year with a tendency to become longer over the studied period. Further characteristics of the agreements are their floating interest rate base, originally linked to the Swedish discount rate, in later agreements to the Swedish T-Bill rate. The latter is considered to be closer linked to the interest rate levels in Sweden. A further change in the contractual structure is that equipment nowadays might be purchased from the lessor, something previously not possible. The leasing deals have been conducted because they have given ESAB the most favorable financing of its equipment. The investor leases are primarily based upon the ability to postpone taxation of income for the lessor. Investors can use the depreciation of the leased

equipment to offset profit.

5.4.4.2 Arranging leasing of equipment to ESAB's customers

In several countries, ESAB offers their customers leasing in order to finance their purchases of ESAB equipment. In the U.S.A 50 per cent of the leasing equipment sold is leased to the customer. In Europe, Switzerland, France, Sweden and, to a certain extent, West Germany leasing is used primarily as a marketing tool. In Spain, the customers were financed with Bills of Exchange which were guaranteed by ESAB Iberica. The leasing deals have not been financed by ESAB, and ESAB has not paid the finance companies any subsidies in order for the finance company to be able to offer specially favorable financing. The West German market manager perceived the leasing agreement as favorable when selling the equipment, as the customer can arrange the financing almost immediately. According to the treasury department, the early successes of leasing in West Germany have not recurred. Customers have in later years not favoured this form of financing. Leasing was considered to be of interest in countries with high interest rates. This was explained by the fact that high interest rates are often accompanied by a shortage of loanable funds in these countries, and that leasing might be a good way to increase the sales of the product.

5.4.4.3 Lending to Third World countries

ESAB makes an exception for Third World countries, where ESAB can not only originate the loans, but also actually lend money to customers in order to help them purchase the equipment. Within the group three persons under KK's supervision arranges these deals. Since 1985, and until late 1989 the total volume of loans granted was approximately MSEK 400. Mostly, the Group does not want to keep loans, i.e. give a supplier credit. Instead, the export financing unit tries to either sell of the risks, i.e. credit insurance, or lets other financial units to give the loan. Annually approximately MSEK 400 of loans are arranged by the unit, but only about a quarter of this amount is given as supplier

credit.

The loans are granted by the Group treasury unit, unless the loans are extended as bills of exchange with a long maturity or have a shorter duration than six months. In those cases the industrial units grant the loans. The cost of the credit enhancement is included in the tendered price of the product. The size of the projects range from MSEK 1-2 to factories for several hundred million SEK.

The function of the unit is threefold: it advises, it conducts financial engineering and it sets limits. For loans of shorter maturity or loans given in the form of bills of exchange, the industrial units are responsible. The export finance units then give advice and make these units aware of favourable financing alternatives. When the firm is engaged in larger projects, financial solutions are needed and the units try to find favourable financing for the projects: some solutions have also been the first in Sweden, e.g. when ESAB used ECU-based financing for a factory sold to a COMECON country, a financial solution the unit was instrumental in providing.

Finally, the export financing unit also establishes limits in several dimensions. On the macro-level the political risk of different countries are determined, as well as of different regions in the world. This analysis results in two types of limits; first political risk limits, one on country level, establishing the total amount the entire Group can borrow to firms established in one country, secondly, some regional limits are established, where the maximum amount that can be lent to customers in a group of countries is established. Second, a traditional credit analysis is conducted, and as most of these export projects are made to countries where ESAB has no representation, the analysis is conducted by the export department.

5.4.5 The international units: (D2)

During 1987, ESAB founded a finance company in the Netherlands, and it found its organizational form early in 1988. Initially, the activities were directed from Sweden with the company in the Netherlands. Later the firm was staffed with senior management and back office personnel. ESAB's treasury department decided that it needed a non-Swedish finance subsidiary because the currency regulation made some transactions more complicated if they were done by a Swedish unit, and second, double tax treatments between some European countries and the rest of the world are more favorable than Sweden's vis-à-vis the rest of the world.

Another advantage with the formation of a finance company was its accounting principles. Unlike a manufacturing firm, finance companies are allowed value its financial assets at market value (market to market evaluation). Thereby, more complex deals can be undertook without distorting the reported results of the parent company.

The unit conducts two tasks: first, it finances the operations of ESAB's subsidiaries, and second it handles the liquidity of those Group companies that are able to participate in the cash-pool arrangements. The choice of the Netherlands as a base for the finance company was contingent on several factors:

- ESAB's volumes are too small to support a finance company in Belgium which possibly has the most attractive tax situation for the treasury operations. Holland has no minimum manning requirements for firms starting finance companies in the Netherlands, and consequently the minimum volume of business required is smaller.

- The Dutch authorities are in a position where they, at their discretion, can apply certain tax rules for companies which want to start financially active units in Holland. ESAB was able to negotiate an agreement with the tax authorities

that, given constraints upon the level of the operative result from the financial units located in the Netherlands, gave ESAB the ability to transfer any financial profits without withholding taxes to the Swedish parent company, ESAB AB, which owns the holding company. This is, given ESAB's present domestic tax situation, considered to be favorable.

If the tax situation in Sweden for the parent company changes, ESAB might consider relocating its financial unit in another country. At the time of the second interview, it was said that if the exchange rate regulations were removed, ESAB would consider to move the financial unit to Sweden. This is, among other things, due to the organizational problems that arise from having several financial active units. This is complicated and requires a great degree of coordination between the units. Still, this decision will be influenced by the tax situation.

The Dutch financial unit is not a profit centre. The financing arranged at the financial units are made as a service to the operative units and profits arose from arbitrage deals conducted during 1987, but where the profits are reported as they are realized. A spread covering operational cost is charged and the rest of the cost-saving is passed on to the industrial units.

5.4.6 The link to the industrial units

ESAB's treasury units act as service centres for the Group's industrial units. A stronger centralization of financial responsibility was in our view difficult to attain, as most units were acquired recently and the situation for the newly acquired units was fairly turbulent during the process of integration in the new firm. The units are quoted prices from the treasury department or the coordination centre, prices they have to accept unless they can find a better offer in the market. The financial structure of the units' balance sheets are their responsibility: they carry the responsibility for the profitability of their units. They are

evaluated against their return on equity (ROE) and the return on net capital employed.

5.4.7 Areas of joint production: (D1+D6)

For ESAB, which has some, but not a broad range of financial activities, there are some areas of joint production to be specified.

The leasing activities are based upon the notion that they constitute sales support for the selling units, but ESAB does not provide the purchaser with more favorable terms than other financial intermediaries can offer. Nor does ESAB accept any credit risk for the purchasing firm. The advantage is that the client can get financing immediately. From the point of view of the finance company providing the leasing contract, ESAB helps them in originating business. It is only in Third World countries that ESAB has financed the purchase of equipment of its customers.

There were only limited placements made at the end of the studied period, when ESAB's liquidity situation improved. Direct lending activities have been performed to a limited extent. The personnel's experience from ESAB's industrial operations is limited, they nevertheless conducted the credit evaluation, indicating that it is standard credit evaluations that are conducted, and that no asymmetric information advantage seem to exist, except that the evaluator can draw upon any knowledge about the client. As ESAB in general has no subsidiary in these countries, however, they are not very close to the customer.

One possible scope economy would be that the treasury department, in its efforts to increase efficiency in handling working capital, created systems which gave it a good understanding of its risk position. In case the position was sold with a positive risk premia, ESAB could sell its risks with a profit.

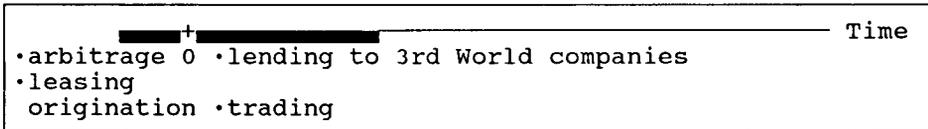
5.4.8 Taxes

As the above descriptions show, tax considerations are important when deciding where to locate activities, and occasionally also when deciding if some financial activity should be conducted or not. ESAB Bridging constitutes a good example of this. When ESAB set up their financial unit in Holland, they wanted to set up a leasing company as they considered the tax rules for leasing financing to be favorable, but before ESAB Bridging became operational, the tax laws were changed in an unfavorable direction for the venture. The unit is therefore to be folded.

5.4.9 ESAB's spectrum of financial activities

In Fig. 5.4 we summarize our view of the outwardly-bound financial activities of ESAB.

Fig. 5.4 ESAB's spectrum of financial service, 1986



ESAB is primarily operating at the left end of the financial intermediation part of the spectra. Some 'pure' financial services are performed.

ESAB conducts arbitrage and trading activities, some leasing activities are originated at the market companies, but ESAB does not carry any loans on its books, except to some Third World country customers. The trading activities are based upon the need to handle the firm's exposure and supported by the financial systems. There is reason to believe that the provision of financing might constitute a sales incentive for ESAB, and they mainly obtain this advantage by helping the finance companies to originate financial business.

The finance company in the Netherlands is a borrowing vehicle which enables ESAB to minimize its tax payments related to

financial activities worldwide. It also provides ESAB with a vehicle to conduct some exchange rate related transactions otherwise not possible to conduct from Sweden.

5.5 Swedish Match¹⁷

We will give a comparatively long review of the history and industrial activities of Swedish Match¹⁸, as is not provided elsewhere in this dissertation. Otherwise, the same structure will be followed as in the section above.

5.5.1 Historical Development

In this context, we will give a description of both the development of Swedish Match's industrial activities as well as the development of the firm's financial activities with an emphasis on its recent activities.

5.5.1.1 Industrial development

Swedish Match¹⁹ (SM) is a consumer-oriented diversified firm. Its core activity was historically the manufacturing and marketing of matches, as well as machinery for the production of matches. The firm is the market leader in the area of matches world wide. Within the matches business area, the firm has been vertically integrated backwards, with holdings of forests, the production of the machinery needed for

¹⁷ Swedish Match was in 1988 purchased by Stora, the largest paper and pulp producer in Sweden. A large part of the firm has since then been integrated in Stora's activities, and some activities have been kept within the firm and are presently, December 1989, for sale. In principle, Stora kept those parts of SM that in some way is related to its business.

¹⁸ Swedish Match was founded in 1917 as Svenska Tändsticks aktiebolaget.

¹⁹ The history of Swedish Match has been very turbulent, and it has consequently received a lot of academic attention. The early internationalization of Swedish Match has been described by Lindgren (1979). This description has for the period before 1980 drawn upon Lindell (1986) and material from interviews conducted with operative managers and annual reports from 1981-1987.

producing matches and also a large interest in the chlorate industry. Early on, SM started to manufacture chipboards from the remainders of the match production.

SM was primarily a manufacturer of matches but its worldwide network of match factories was reduced after three events. First, after the financial collapse of AB Krueger och Toll the firm lost some of its production units in the ensuing restructuring. Second, after the second world war, SM lost most of its factories and concessions in the Eastern bloc. During the late sixties, quite a few of the firm's match factories in the Third World were nationalized, and the firm decided to diversify into three other areas: heavy manufacturing industry (Amco AB), packaging (Åkerlund & Rausing), and doors (Ji-Te Ab: later Svenska Dörr and now SweDoor). The firm was divisionalized, creating a staff function for corporate HQ.

The profits from the match production were used to finance this diversification. The building industry was singled out for a couple of structural reasons: the Swedish building material industry was fragmented and consisted of several small companies. Furthermore, the Swedish government had started a large program to build one million new apartments, and the industry could expect quick growth²⁰. Furthermore, SM already manufactured the chipboards used in the production of kitchen cabinets as well as in doors.

Between 1968 and 1974, the firm acquired 17 companies in the building materials industry. Nine of these companies were localized in the Common Market and eight in Sweden. The expansion into the EEC was based upon the belief that the national building standards in the EEC were to be harmonized but this did not occur, thereby preventing Swedish Match from reaping any economies of scale in its European production. The oil price increase in 1973-74 triggered a slowdown in

²⁰ The growth of the building material industry in Sweden in the period 1968-73 was 400%, (Lindell, 1986 p. 14)

business activity, and simultaneously some of the firms in the EEC, primarily Kübel AG in West Germany, operated with large losses.

In 1977, the crisis of the building division led to a change in the CEO's office; Mr Gunnar Dahlsten was elected as CEO. Swedish Match sold off all assets not absolutely necessary for the company's future activities in order to rebuild financial strength. This included share holdings in Wilkingson Match Ltd and Gullspång.

The financial control system was further developed and profit centres were established down to the level of individual companies. Top management's control over the divisions was further strengthened. The divisions were renamed 'groups'²¹ and boards were established for each of them. The basic logic was to keep a closer scrutiny of investment decisions, but not to interfere in the operations of the divisions. SM's policy was to view the firms as independent units and top management's role more as the role of a board, accepting major endeavors initiated by Group management. The divisions were divided into two groups: with or without preference. The latter ones were to be sold or divested.

During the period 1978-1984 45 companies with a total turnover of MSEK 2.950 and with 8,350 employees were sold. Simultaneously 40 companies were acquired with a total turnover of MSEK 3.700 and with 8,900 employees.

Since 1982, Swedish Match's composition of divisions has been the same. All major changes of Swedish Match's industrial activities could be described under the individual division's

²¹ As a matter of fact, the divisions [we will call the different business areas 'Divisions' in spite of Swedish Match's policy of calling them 'Groups'] are primarily responsible for the return on total capital used, not for the financial structure of their balance sheets. In the business reporting system currency decisions are attributed to the different divisions, but are in reality decided by the firms treasury department. More of this further on.

headings, with the exception of the sale of the real estate to Hufudstaden and the subsequent sale of SM's shares in Hufudstaden.

In 1982, the reorganized Swedish Match had the following business areas (op.cit. pp. 21-22):

- Tarkett (wood-, PVC- and textile flooring)
- Match (matches, lighters and forestry)
- Packaging (of non-liquid products)
- Doors
- Kitchens
- Alby Klorat (chemicals)
- Real estate

In 1984, the real estate was sold to Hufvudstaden AB against the purchasing company's stock in value of MSEK 650. This sale was seen as a means to finance further acquisitions.

To describe Swedish Match's strategy two comments might suffice. In 1984, Hans Larsson became CEO for Swedish Match, and in the 1985 annual report he characterizes the divisions in the following manner:

"A general characteristic of all business areas shows that the emphasis in Swedish Match activities is placed on mature products manufactured primarily using established based technologies. Many products have a relatively low degree of refinement in production channels. A substantial part of their value added lies in distribution channels from factory to customer. This is particularly true of the home improvement group.

...Economies of scale derived from strong market positions are a requirement for the achievement of satisfactory profitability in mature markets."

This emphasis on market- and cost-leadership in mature industries is probably a common heritage from the days when Swedish Match was a large oligopolist in the mature match industry.

As a consequence of this strategy, Swedish Match in 1987 let Tarkett purchase a large European competitor, Pegulan AG,

West Germany in order to increase its market share in several European countries where SM's own market share was perceived to be too small. Further, Wilkinson Sword Ltd, Great Britain was purchased to increase market shares in the Match division's businesses.

5.5.1.2 Development of financial activities²².

Swedish Match has a long history of association to financial activities. The most well-known activities were those of AB Kreuger & Toll and Imco (International Match Corporation, USA) which together with STAB constituted the Kreuger Group. Kreuger and Toll and Imco extended loans to governments against concessions for match monopolies. These extensive lending activities in combination with the stock market crash and the accompanying recession were the prime causes of the financial debacle of the Kreuger Group. STAB changed hands after the bankruptcy of Kreuger.

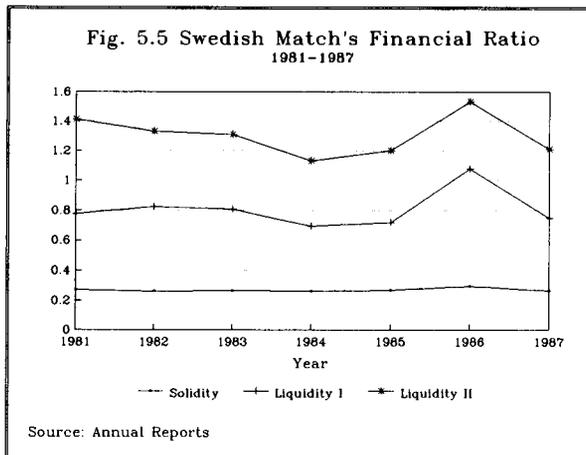
In 1973, SM moved parts of its headquarters, including the treasury department, to Brussels, as a part of its international expansion. Simultaneously, some parts were moved to Stockholm, the rest remaining in Jönköping. Coordination problems forced the firm to centralize its activities to Stockholm in 1977.

The firm's liquidity was strained after the problems in the buildings material division, and it is depicted in Fig. 5.5, below.

In January 1985, Hans Larsson was elected new CEO for Swedish Match, previously having worked in the area of Finance. Hans Larsson recruited Peo Lindholm (PL) as head of the treasury department from Svenska Handelsbanken in 1982. They knew each other, from working together in Skandinaviska Enkilda Banken,

²² The sub-sections below are based upon interviews with financial officers of Swedish Match, see Appendix 5.2, annual reports 1979-1987 and published articles by Lindholm (1987) and Ohlson and Lagerborg (1988) and Herolf and Wissén (1988 and 1989).

and from working at 'Svenska Varv', the state-owned Group controlling most Swedish shipyards at the end of the 70s. At Svenska Varv, PL had been head of the treasury, and had been one of the pioneers opening up the Euromarket for Swedish corporate borrowers in the second half of the 70s.



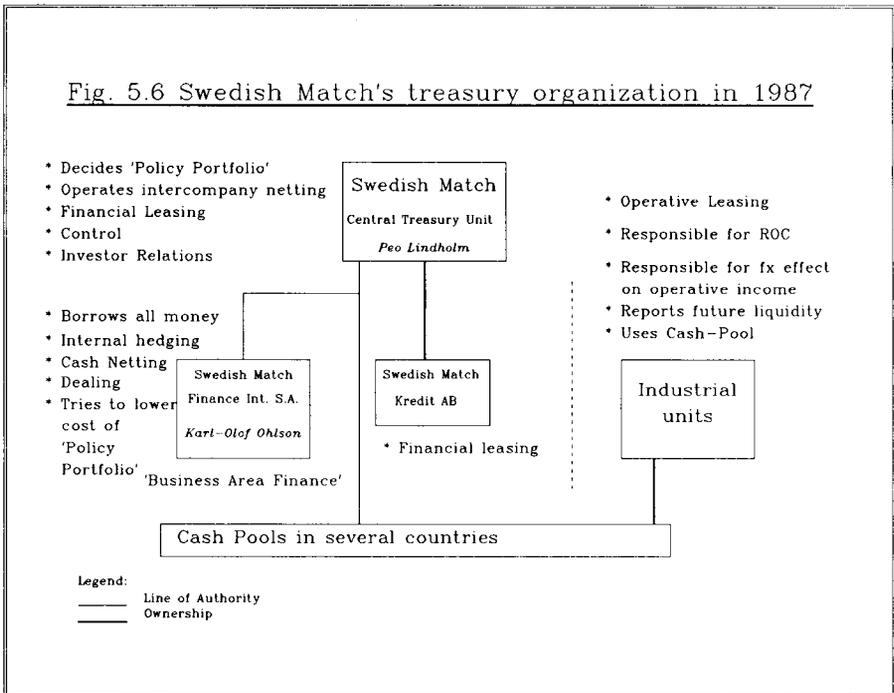
The relationship between Hans Larsson and PL and Hans Larsson's previous experience as controller was seen as important by PL; the top management of the firm had an understanding of financial matters, understood the importance of the reporting system and the interlinkage between the financial activities and the reporting system. Furthermore, it was important when the firm started to take financial positions in the market, and PL actively tried to increase the CEO's understanding of the financial matters.

When PL came to Swedish Match, the reorganization of the financial department had already started: cash pools were created in several countries and the department had been 'modernized'. The cash-pool system was created in order to make the cash management 'cost-efficient'.

Furthermore, a netting system was created by the firm, which it managed from Stockholm. The firm in autumn 1985 founded a

'Coordination Centre' in Brussels, Swedish Match Finance International S.A. The unit had a dual roal, both executing the policy portfolio created by the treasury department and acting as a 'business area finance'. In 1987 a minor leasing company was formed which primarily was to conduct operational leasing of a newly developed product.

In 1987, the treasury of Swedish Match was geographically dispersed with three separate units, see Fig. 5.6. In Stockholm the treasury department was localized, owning a minor leasing company.



5.5.1.3 The control system's development

The control system vis-à-vis the subsidiaries is important, as it makes the treasury's part of the balance sheet unimportant to the managers of the industrial activities of the firm. Thereby, the entire financial balance sheet of the firm's different units is the responsibility of the treasury department. See Fig. 5.7.

Fig. 5.7 Swedish Match's evaluation system.

Cash & Marketable Securities [C]	Accounts Payable [B]
Other Assets [A]	Interest bearing debt and equity [D]

Divisions are responsible for the capital, here defined as Other Assets plus Accounts Payable: $\{ \equiv A - B \}$.

The Financial units are responsible for the handling of the liquidity and the structure of the 'Interest-Bearing Debt & Equity: $\{ \equiv C+D \}$.

Swedish Match gains two things by dividing up the responsibility of the assets in the manner described above. First, the industrial side is responsible for those items it can control, i.e., all assets plus its own account payables, but less the cash.

According to the Vice President Finance, the industrial units must be made responsible for handling the exchange rates. This is because they are close to the decision of how to price the firm's product in the different markets, as well as in what country they are to be manufactured and from where to source the imports. Lifting the exchange rate risk from the industrial units, would lead to unfavorable decisions from the Group's point of view.

On the other hand, the treasury units did regard it as unwise for the divisions to be left with the decision to predict what was going to happen with the exchange rates. Their

competence was believed to be more industrial than financial, and therefore the units were supposed to be responsible for exchange rate decisions, but the decision was then to be reviewed by Group management. This dilemma is resolved with internal forward contracts. The divisions enter into hedging contracts with the 'Coordination Centre' in Brussels. These contracts are real, as they will result in real payments made between the industrial units and the Coordination Centre.

The decision of the currency exposure Swedish Match as a Group should have been made at the treasury department, the decisions were then executed by SMFI. The business area finance, which is a part of the financial department, was also allowed to conduct externally oriented financial activities, under an elaborate control system.

The industrial units send in cash flow reports and decide what level of hedge they want their foreign denominated currency inflow and outflows to have. Nevertheless, Group management is in a situation where they, by aggregating information about the division's expected cash flows denominated in different currencies and by aggregating the hedges the division have required, can calculate the total financial exposure of the firm. At the time of the interviews, the central treasury department suggested to the board or Hans Larsson what level of hedge the Group should have, i.e. if it wanted to insure the net exposure in foreign cash flows or not. This decision, together with other decisions on the composition of borrowing and financial structure of the firm, was incorporated into a 'policy portfolio'.

The 'Business Area Finance' in Brussels was given an option: conduct the financial activities in accordance with the 'policy portfolio' or create another, better portfolio. The basis for SMFI's profits is therefore the difference between the market value of the policy portfolio and the market value of the portfolio created by the financial unit.

The profit or loss that accrued due to that the central treasury departments covers or does not cover the exposure of the divisions internal forward contracts in the markets affecting the operative profits. Effectively this changes the hedging exposure of Swedish Match as a group.

The treasury unit pays the industrial units, whatever they are entitled to according to their internal forward contracts.

5.5.2 Segmented national markets: (D3)

From Swedish Match several types of arbitrage opportunities were reported, international as well as intra-national arbitrage.

5.5.2.1 International arbitrage

At the time of the interview there existed covered interest arbitrage opportunities that the firm could profit from. The same logic applies here as in section 5.4.2 above. The CFO made some remarks about these opportunities: first, that the spread had decreased over time, initially 70-80 basis points²³. This spread had decreased to the extent that at the time of the interview was one rarely offered this kind of arbitrage opportunity. When the spread was about 25 basis points, this activity generated approx. MSEK 2.5 per annum, which would mean that the average arbitrage volume would have been about SEK 1 billion. This arbitrage paid for the entire treasury department of SM. Furthermore, this arbitrage gave the firm's financial analysts an opportunity to learn to know the markets, knowledge which they later used when looking for 'inconsistencies' in the pricing in the financial markets.

5.5.2.2 Intra-national arbitrage

Another type of arbitrage is possible in countries where non-

²³ Basis points is the usual trading description of .01 per cent, i.e., a per cent difference in lending and borrowing interest rates would constitute a 100 basis point spread.

financial business is subsidized by interest rates lower than the financial interest rates. Such opportunities existed both within as well as outside Europe. When conducting this kind of arbitrage it is of importance that the arbitrage has no negative effects on those variables on which the local subsidiary manager is evaluated. As we have seen above, the local Swedish Match manager will not be affected by this kind of activity.

The importance of this kind of arbitrage was not specified in this context.

5.5.3 Financial policy

The basic notion is that the firm can use its balance sheet and its operational exposure in a manner that reduces the reported financial costs after tax. This includes, for example, the handling of translation exposure as well as the external financial activities mentioned later. Borrowing is primarily to be conducted in the capital and money markets. The basic technique for funding SM's activities is described below.

The board of SM was involved in taking the major decisions as to the degree of financial risk the treasury department was allowed to take upon itself.

The firm developed a risk measurement system which combines the transaction-, accounting- and the financial exposure into one measure. The goal for the firm's exposure management was according to the CFO, that the firm maximizes the net income of the firm after tax.

At the time of the first interviews, the control system was not fully developed, but it has since then been further refined by Swedish Match and its workings are described in Herolf and Wissén's (1989) article. The policy portfolio has been turned into a so-called 'zero risk portfolio', which takes the firm's transaction exposure as the basis for the

calculation. In this portfolio, there should not be any interest rate risk, no currency risk and there is no liquidity risk. For Swedish Match, the basis of this portfolio is a cash flow projection for the coming twelve months, i.e. the operative exposure will be covered for this period. The risks SM has when it has netted the financial exposure against the operative exposure of its industrial units are then measured over two dimensions: currency risk and interest rate risk. The interest rate risk is divided into two types of interest rate risk: the risk that the yield curve moves in parallel shifts and the risk that the slope of the yield curve changes.

The financial unit is allowed to incur financial risk which could result in a maximum loss, given a worst case scenario. The treasury department is given figures to calculate the worst case scenarios with. They were, for the currency risk a movement of 7.5 per cent devaluation of the Swedish krona and for the parallel yield curve, movements of 2 per cent. For the firm's portfolio, the effect of changes in line with the worst case scenario calculated and the total amount lost compared with the limits. The risk is calculated in such a manner that international diversification is considered, with experience based co-variances between different financial prices.

5.5.4 Leasing: (D5)

Swedish Match is only engaged in leasing activities to a limited extent: some financial leasing is done and to a limited extent operative leasing is conducted. The leasing operations are conducted at Swedish Match Kredit AB, a leasing company with a volume of MSEK 28.6 in 1987.

5.5.4.1 Financial leasing

Swedish Match in 1986 had entered into some financial leasing contracts, owning a small stake in one special entity leasing airplanes to the customers of SAAB. The amounts were still nominal, mostly because Swedish Match, at the time, still has

no need to find extra tax deductions. PL expected that the firm would conduct more leasing business than at present but wanted to handle so large volumes that it motivated the employment of several financial officers. This was in order to attain a critical mass of competence within the unit handling leasing.

5.5.4.2 Operative leasing to customers

Some of the divisions like Åkerlund & Rausing were to lease equipment to customers. This leasing is connected with service agreements where Å&R are to deliver the material which is used as input to manufacture packages or package a product. This kind of leasing will give the lessor possibilities to postpone taxes, and the leasee will probably get more favorable financing than with a straight loan.

5.5.5 Economies of scope for 'pure' financial service (D6)

There are no 'pure' financial services performed, besides the arbitrage activities conducted.

5.5.6 The international units: (D2)

The unit in Belgium is the firm's Coordination Centre. Coordination Centres are units whose sole purpose should be to perform HQ-related activities, which are to be considered to be internal in their scope²⁴. We will give a general description of the function of a Coordination Centre, based on Belgian material. We go on to describe what the management perceived to be the main advantages of having a Coordination Centre and why it is localatated to Brussels.

5.5.6.1 Coordination Centres in Belgium: the legal context²⁵

The legal status 'Coordination Centre' was created by a

²⁴ We are aware of special legislation for this kind of entity in Belgium, West Germany and in the Netherlands. Luxembourg is also expected to issue provisions for this kind of activities shortly.

²⁵ This section is based upon (Meyers, 1985 and Bank Brussels Lambert, 1987)

'Royal Decree 187', dated December 1982. The regulations have been changed several times since then, and there still remain some unclear areas of how to interpret these laws. This is primarily due to the nature of these regulations, as they have to be compatible with EEC-regulations about non-subsidizing the industry at the same time as they are supposed to attract MNC:s to Belgium. Furthermore, some of the statutes have made it possible to avoid taxes which have led to a change in the method by which the profitability of Coordination Centres is calculated. We will describe the rules as they were perceived in May 1987 (Bank Brussels Lambert), with the caveat that the situation is turbulent and may have changed since then.

There are some minimum requirements for attaining the status of Coordination Centre in Belgium:

- The firm has to be a multinational firm with an annual turnover of at least BFR 10 billion and a consolidated capital outside Belgium of at least BFR 500 million, and it must have had subsidiaries in at least five different countries besides Belgium;
- The firm must employ an equivalent of at least 10 full time employees.
- Coordination Centres cannot be holding companies, and must be either a Belgian company or a Belgian branch of a foreign company recognized as legal entity where it has its legal domicile.
- Normally, Coordination Centres cannot issue loans represented by fixed income securities with maturity periods longer than one year. Exemptions may be granted provided that the fixed income securities are issued outside Belgium and in currencies other than the Belgian.

Coordination Centres can only perform activities which are 'preparatory or auxiliary services' for the Group they represent. It is not allowed to act against third party. The catalogue of permitted activities includes: financial

activities including treasury and cash management and lending activities; accounting, legal and fiscal activities, personnel-related matters like training or administration; data processing, insurance and reinsurance, scientific research, and some routine administrative industrial and commercial activities.

In order to encourage corporations to localize parts of their internal activities to Belgium, tax benefits are given to Coordination Centres, some of them listed below:

- The Coordination Centre's taxable income is notionally fixed in relation to its operating costs, excluding financial and personnel costs. The income is then calculated as a percentage of the firm's operative cost, normally between 5 and 8 per cent; apparently subject to negotiations between the MNC and the Belgian authorities.

- The Coordination Centre does not pay any withholding taxes on dividend or interest payments, nor are royalties paid by the Coordination Centre. Nor are any withholding taxes paid on interest received by the Coordination Centre for bank deposits.

- Foreign executives and researchers may be considered non-residents by the tax authorities, and thereby only pay income taxes on their income from real estate in Belgium and on salaries earned in Belgium. Furthermore, fringe benefits up to quite substantial amounts can be paid by the firm, without the non-resident having to pay taxes for them.

There are some drawbacks with a Coordination Centre, the most important being its inability to deduct withholding taxes paid by the Coordination Centre. Meyers (pp. 475-476) claims that there are ways to direct costs in such a manner that these withholding tax-disadvantages can be equalled out.

5.5.6.2 Swedish Match's Coordination Centre in Belgium

Swedish Match has a company in Brussels with a status as a Coordination Centre, Swedish Match Finance International S.A. (SMFI), in Brussels and it is primarily engaged in financial

activities as an internal bank and a borrowing vehicle. The President of the firm was Karl-Olof Ohlson (KOO), who worked as a banker internationally and was also a controller of one of the larger firms in the Group before he got involved in the financial units. The activities of the Coordination Centre are shown schematically in Fig. 5.6 above.

A. Activities

• SWMI is responsible for the borrowing of money, and the unit handles approximately 80 per cent of the firm's debts. At the time of the interview, the firm borrowed by issuing short term commercial papers, constantly rolling these over. The firm for liquidity reasons was also able to draw from a revolving underwritten facility (RUF).

The firm borrows money from the capital market, but at the time of the interview, the firm also had approximately 50 per cent of the short term borrowing covered by some kind of credit commitment, in case the short term instruments, for some reason, did not find takers at acceptable prices.

It was cheaper to borrow USD with commercial papers, swap into other currencies and maturities, avoiding the liquidity risk by purchasing credit commitments, than to finance by directly borrowing the type of money the firm in the end wanted to attain. The purchase of credit commitments was fairly cheap as long as the commitment was backed by a bank from one of the financial centres where banks do not face any capital adequacy requirements for credit commitments.

The typical price quoted by some international banks, at the time of the interview was 1/16 % p.a. on the facility for a credit commitment to the firm.

The preferred combination of currencies, maturities and interest rate basis is then created by swaps. The firm draws on all instruments available in the market, but does not use large volumes of futures.

Coordination Centres are²⁶ not allowed to act as direct lenders in the Belgian markets, and are probably not allowed to market their securities themselves, even if this was an activity which KOO would like to engage the firm in.

•The international units manage their netting and hedging activities with SMFI as a counterpart. These deals were made at arm's length prices, which are always available from the market.

•Arbitrage activities are also conducted. These activities are mainly connected with some risk, and positions are open for more than a day. The general idea is that the firm will be able to spot inconsistencies in the markets as regards the pricing of financial instruments and be able to find segments on the yield curve which enable the firm to refinance its activities favourably. No details were given as to how these activities are conducted.

B. Governance

In a strict sense, the SMFI takes positions in the markets, and is given limits by the Group's board and the treasury department. The technical solution to the problem of how to measure the 'business area finance's' own contribution, is very interesting. The unit is a profit centre and return is not measured against the equity the firm invested in SMFI. The above-mentioned imaginary policy portfolio which constitutes the central treasury department's view of the optimal financial structure for the firm is set up for SMFI. It is then allowed, within limits, to alter this structure in order to attain a more favourable composition of the debt. At the end of a measurement period, the return is calculated by

²⁶ As mentioned above, the unclear wording in the legal statutes regarding Coordination Centres has created large grey areas where it is unclear what a Coordination Centre is allowed to do. The authorities have the means to intervene if they perceive the activity to be too far from 'internal' activities.

comparing the net present value of the policy portfolio with the actual portfolio.

C. Legal structure

SMFI is owned by Swedish Match's subsidiary in the Netherlands, but controlled by the corporate treasury department.

D. Advantage with Belgium

The manager of Swedish Match's Coordination Centre in Brussels perceives some major advantages for the firm:

The firm is outside of the realm of the Swedish exchange rate regulations and is therefore in a situation where it can, on behalf of the non-Swedish units perform some operations otherwise not possible in Sweden.

The tax advantage the Coordination Centre can achieve is also important. This makes it more profitable to coordinate the financial activities of the Group from this unit than from the treasury department. The disadvantage of not being able to deduct withholding taxes paid by the unit can be circumvented. According to PL, there are other possible advantages for the firm's global tax situation, given that the correct dispositions are made.

The tax situation for the personnel was also considered as favourable by KOO.

5.5.7 Areas of joint production: (D1)

Swedish Match only has small amounts lent to other agents. There are no 'pure' financial services conducted, except for those activities which are conducted at the Coordination Centre, basically arbitrage and position-taking:

- KOO saw the name recognition which was achieved as a possibility to increase the firm's borrowing capacity;
- Furthermore, the hedging activities create a base of knowledge about the markets 'micro'-structure that enables

and simultaneously lowers the financing costs, as well as being a part of the solution to the problem of centralizing financial activities, while keeping the responsibility of exchange rate at the industrial units.

5.6 Company X²⁸

Company X is a major Swedish related diversified manufacturing firm with production units in Sweden as well as abroad. The industrial units operate mainly in a global oligopolistic environment where the firm is one of the major players²⁹.

5.6.1 Historical Development

In late 1977, the treasury department was staffed with approx. 5 financial officers and back office personnel: it conducted export financing, handled currency issues and corporate finance issues. The treasurer reported to a Senior Vice President in charge of 'Finance and Administration'. Later a new Vice President in charge of 'Finance and Administration' was appointed. He initiated a change in the direction of the treasury's activities in addition to their

²⁸ This segment is based on internal company materials, annual reports 1980-1987, Company X company magazine (1986-1989) and interviews with officers specified in Appendix 5.1.

²⁹ The company has participated in the study and has provided all the material needed, but has expressed the wish to have the final report published in a manner where the firm's name does not appear. The company has therefore been renamed 'Company X'. The information about the firm's organization is more general than in the other cases. Some details about when units were formed etc, which would have made it easier to identify the firm, have been excluded from the report. Some volumes and figures have been given in approximate numbers, the author has been given the exact figures, but exact figures which are publicly available have been avoided, as they would facilitate an identification of the firm. The altered figures are approximately the same as the real figures. No information in the case has been given which does not correspond to the real situation, but some details about the organization have been left out; these exclusions, though, are considered minor and irrelevant to the issues discussed in this description.

expansion.

The treasury operations slowly became more specialized but the main outwardly-directed activities were project financing and export financing issues. At the beginning of the eighties, the firm formed a separate unit for project financing, 'Company X Treasury Unit 2', which was relocated to the business areas.

Later, Company X transformed parts of the treasury operations into a corporation, 'Company X Treasury Vehicle 2 AB' which reinvoices the different Group units. A separate company, 'Company X treasury vehicle 1 AB' had previously been formed, and handled the Group's customer-related leasing activities, when the company started to lease 'big ticket items' delivered by Company X to its customers.

In the mid eighties, a new Group treasurer was appointed, who before he joined Company X had worked in senior positions in industry as well as in the banking sector. Under his auspices, a major change in the treasury activities of the company started, with more outwardly directed financial activities. Company X transformed parts of the treasury activities into a profit centre.

After reorganization, the treasury consisted of the internal bank 'Company X Treasury Unit 1'; a separate company, 'Company X Treasury Vehicle 2 AB' running the invoicing system; the operations of 'Company X treasury vehicle 1' and 'Company X Treasury Unit 2', the project financing department.

Simultaneously, efforts to attain a more effective working capital management for the Group gained momentum when Company X encountered a dip in earnings connected to problems in one of the firm's business areas. A major working capital program was initiated in order to decrease the working capital of the firm. As a part of this project, Company X created a system

for netting which decreased the working capital needed, as well as reduced the float for the Group's payments.

The following year, Company X opened up a 'Coordination Centre' in Belgium. The 'Coordination Centre' will be discussed in detail below, together with the organization of the activities.

The treasury's activities required a centralization of the financial activities within the Group. This was initially achieved mainly by a 'service attitude' towards the industrial units. The treasury tried to help and guide the industrial units and slowly to coerce them into giving up their financial autonomy. The units initially had responsibility for their financial costs and consequently their interest in the activities sometimes impeded on the treasury's ability to structure the financial operations in an optimal way. In the late 80s the Group changed its internal governance system, and also the variables against which the industrial units' management was evaluated. The new variables were more operatively oriented: operative profits, ROC with a budget interest used for interest paid, and operative cash flow. In the internal company magazine these changes were clearly endorsed by the Vice President in charge of 'Economy and Finance' to increase the treasury's ability to make use of the opportunities in the financial markets.

The treasurer also perceived this as an advantage, giving his unit the ability to be more active. He stressed, however, that from the point of view of these firms, industrial units benefited from the specialization as they were given the same prices as the treasury when any activities were made between the units. Nevertheless, the treasurer viewed as necessary the period of decentralization of financial responsibility which had preceded the increasing centralization of treasury activities. The interest for financial matters had to be decentralized, as the treasury had no power to implement its ideas unless it could provide evidence of their

profitability. Today, cash management programs as well as the centralization of the treasury activities can be pursued in a much more vigilant manner, as proven by the usefulness of the present operations.

5.6.2. Organization

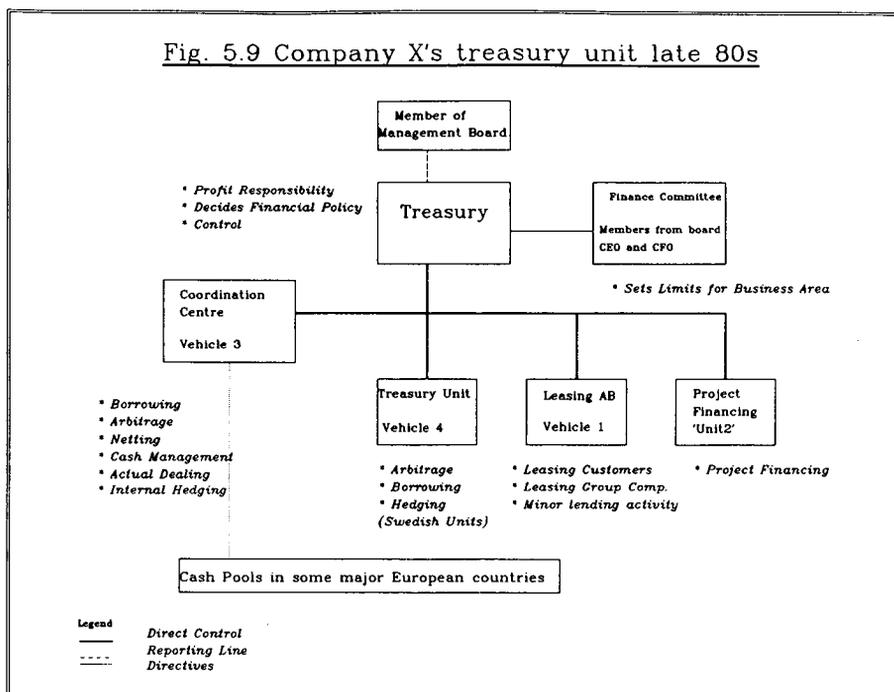
We will describe the organization as it was at the end of the eighties. No major changes have been conducted in the structure of the business with a few exceptions: the internal bank has been transformed into a separate legal entity, the direct responsibility for the cash pools having changed, and a dual corporate trading desk has been integrated into one, localized at the Coordination Centre. Moreover, the unit is now responsible for the cash-management units.

In the late eighties, the treasury was organized as pictured in Fig. 5.9.

At this time, approximately 30 persons were employed by the treasury. We will describe the activities of the different units below, a discussion of the governance structure sufficing here. The general financial policies are decided by the 'Finance Committee', where the head of the Treasurer makes policy suggestions. This body sets up overall limits on risk exposure as regards financial risks and the amount of stock to be carried in the portfolio. It classifies, in general terms, different agents in risk classes and sets maximum amounts to be lent to an agent assigned to a specific risk class.

These policies are given an operational content by the head of the business area. Together with a member of the management board and the President of the Coordination Centre in Belgium guidelines for this unit are established, within the framework of those established by the 'Finance Committee'.

Fig. 5.9 Company X's treasury unit late 80s



5.6.3 The overall financial policy

The firm has a global treasury view, and tries to handle the firm's financial activities from the view of the Group's financial exposure. The firm has been able to hedge its balance sheet exposure since it started to engage in the foreign capital markets. Today this is done by a combination of forward contracts and currency basket loans, imitating the exposed equity. This exposure amounts to SEK 2.5 billion of net equity abroad. The Group treasurer sees the balance sheet exposure as the relevant measure to hedge.

The goal of the treasury's activities is to increase the profitability of Company X after tax. The treasury is therefore prepared to take moderate financial risk and act upon perceived inconsistencies in pricing in the financial markets. These activities will be discussed below when we discuss the activities of the internal bank. The general policy has been to build up profits gradually over a business year, staking fairly small amounts initially and as profits are generated staking an increasing amount of money. The prime reason for this has been that the treasury should avoid

having a negative impact upon profitability of the Group. In order not to lose any money the industrial units have earned. The riskiness of the operations in early 1990 had decreased significantly, due to both the changing opportunities in the wake of the abolition of the exchange rate regulations as well as changing expectations about the future development of the value of assets in the financial markets.

The tax situation of the firm is also of importance when structuring the global treasury operation. As the firm's operative units are nowadays evaluated primarily on their operative income before financial charges, the treasury department's activities will not affect the measures which the different companies are evaluated against. This enables the treasury department to take optimal decisions worldwide without considering the effect these decisions have upon the operative units results, except at a global level.

The cost of funding advantages of the global treasury management was not considered as important as the above mentioned factors. Nevertheless, Company X, like the two firms described above, uses the international capital markets to finance the activities of the Group. Borrowing takes place on the short end, primarily using commercial paper issued in the Euromarkets as well as through private placements, and where the final positions are created by swaps. A facility of several hundred million USD is provided by a consortium of banks requiring a fee of 0.075 per cent per annum of the firm to provide liquidity in case of emergency, and other sources of liquidity are available on request. Another facility is given by Swedish banks for Swedish commercial papers.

The firm does not market the commercial papers itself; instead the papers are marketed by market makers among the banks. The prime reason for this has been that the financing provided by banks has been cheaper than the cost of rating and marketing commercial paper programs of the present size, but the firm is pondering upon whether it could market its

own commercial papers in the future or not.

The least important advantage of the global treasury management was the possibility to conduct arbitrage activities. These will be described below in the section describing research direction D3.

5.6.4 The internal bank

The internal bank was initially called 'Company X Treasury Unit 2'. The internal bank was active in the Swedish context and handled the Group's Swedish liquidity acting as an internal bank for Swedish units. By the creation of the Company X treasury vehicle 3 S.A. (VEHICLE3), see section 5.6.8 below, the non-Swedish netting was moved to this unit. The internal bank conducts the arbitrage activities in Sweden, borrowing and lending activities in Sweden on the short end, and hedging activities for the Swedish units. The turnover has been substantial, SEK 11 billion in 1984, and SEK 35 billion in 1985 (Company X internal magazine, 1986) and constituted 10 per cent of Group profits. Since then the treasury has contributed approximately 10 per cent of the Group's total profits, with small fluctuations.

The basic notion has been to borrow money abroad and place it in the Swedish capital market thereby attaining a significant margin between the borrowing and lending rate. The ensuing exchange rate exposure is partially offset by the cash-flows generated from abroad, but also by blending different currencies in a currency cocktail that decreases the variance in the value of the loans expressed in SEK-terms.

The internal bank's activities were transferred to a separate company in 1988 - Company X treasury vehicle 4. The formation of a separate company was motivated by several factors. First, when Company X conducts trading activities in financial papers, they do it as a sideline, and they are therefore not able to make any reservations for possible losses in the value of the papers, unless they have already

occurred. With a company, which has trading in financial instruments as its main business, this opportunity is given. Furthermore, it was thought to be easier to recruit officers if they were heads of separate companies, rather than departmental officers.

As mentioned above, the Company X Treasury Vehicle 4 in the late eighties let the Belgian unit conduct all trade on its behalf. This was done for three reasons. First, the exchange rate regulation made it possible to transfer these activities outside Sweden. Second, the element of competition that had been inherent in having dual dealing desks had previously been seen as providing creative pressure to find new business opportunities. At the time, this competition was not regarded as warranting a dual expense of approximately MSEK 2 per annum.

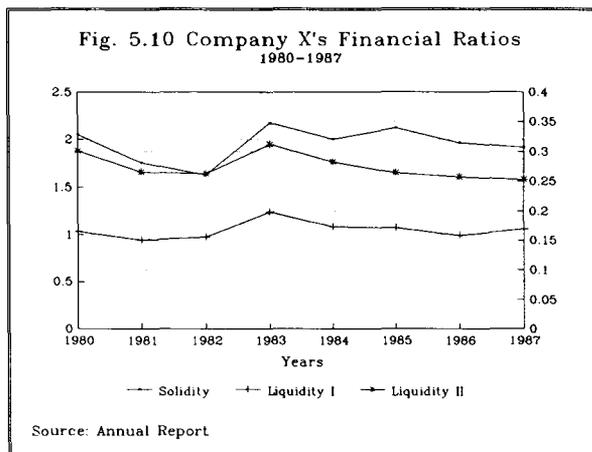
Furthermore, the tax situation in Sweden for financial markets has been marked by turnover taxes being imposed, raised and lowered, in an unpredictable manner. As this has made dealing activities in Sweden more expensive, and the markets less liquid, the interest from Company X to be present in the market has decreased, especially as the level of uncertainty about the tax situation was considered to remain high. Therefore, Company X let all dealings be performed by VEHICLE3, in Company X Treasury's name, i.e. on an agent basis. The Group treasurer is now also head of the Company X treasury vehicle 4.

Company X's external financial activities are directed into several areas: leasing, arbitrage, trading, placement of liquidity as well as some project financing activities.

Company X has a good financial standing (see Fig. 5.10 for the Group's approximate financial ratios). We will now turn to our research directions.

5.6.4 Segmented national markets: (D3)

Company X reported that the firm conducted the above mentioned covered arbitrage activities. The volumes are not shown on the balance sheet, which the company according to Swedish GAAP, 'FARS rekommendationer', does not have to do as long as both the instruments purchased and the loans made are deposited at the same financial institution. The profitability of these operations is, of course, dependent on the spread which has been decreasing over the years. Initially, the spread was approx. 65 basis points but it decreased to approx. 15 bips. Many Swedish firms publish the covered arbitrage volumes in a footnote, which Company X also does, see Table 5.1. Assuming that the firm in 1986 on average held MSEK 1000 with a spread of 25 basis points, this would have constituted a contribution to the profit of MSEK 2.5³⁰, which would have given the treasury department a fairly good return to cover the cost of having a dealing room.



³⁰ Given that the arbitrage is taxed at the Coordination Centre, and that the taxes, as reported above, are based on a certain percentage of parts of the Coordinations Centre's operative costs.

Other arbitrage opportunities were said to exist, and confronted with possible arbitrage opportunities, the treasurer said that the firm had acted upon opportunities to discount eligible bills in West Germany as well as in Great Britain at a below market interest rate and to place the money in the money market. Furthermore, as far as the firm had encountered subsidized interest rates in Europe or elsewhere, the firm has borrowed the money and placed the proceeds in the money markets.

Table 5.1 Company X's approximate netted amounts of financial assets

Year	1984	1985	1986	1987	1988
Amount MSEK	500,0	750,0	1.000,0	2.000,0	1.000.0

Source: Annual Reports 1984-1988

5.6.5 Leasing: (D5)

We will give a detailed description of the firm's leasing business -from the firms described, Company X is the only one which has significant outwardly directed leasing activities.

Company X's leasing activities are divided between a Swedish unit and several international units: in Sweden Company X treasury vehicle 1 AB, in the U.S.A. leasing is conducted by Company X-Leasing Corp. This company is a subsidiary of Company X Inc, also in U.S.A. Company X has also started a subsidiary in Spain, directly owned by Company X AB, but when the first interviews were made it had not started to conduct any business³¹.

³¹ This unit was later sold when the Spanish authorities changed the leasing law in a direction unfavourable to manufacturing linked financial leasing. Company X then had the choice of conducting business with customers unrelated to the company's core activities or divesting. The operations had been profitable and the firm attained a satisfactory profit from its investment.

5.6.5.1 Company X Leasing Corp U.S.A

The leasing company was established in order to finance one business area's customers in the U.S.A. Activities of significance started in 1983 when the firm booked approximately USD 3.5 million in new leasing contracts, the following year 4.5 USD million and in 1985 0.6 USD million. The activities were reduced that year, as the U.S. business could not use the investment tax credits which constituted the basis for the business, and in 1986, the Company X Leasing Corp did not do any business. The U.S. Government abolished the investment tax credit in 1987. Company X Inc. still originates the contracts, but now competes on the same terms as other finance companies.

Company X Inc. has also originated customer-related financing of some 'big ticket items' for other business areas activities in the U.S-market, but these have been financed by other finance companies.

5.6.5.2 Company X treasury vehicle 1 AB (VEHICLE1)

At the fringe of the company, leasing activities had been conducted by a small company, which as part of a barter agreement between Company X and a COMECON country sold some equipment which had difficulties in finding customers. In order to increase sales of these products, leasing was offered to the customers. These activities had been going on for a time unknown to the manager of the leasing company, when they were moved to the treasury department in 1980. They were only of marginal importance, totally a stock of MSEK 4 was transferred, and as a consequence, a separate leasing company was formed: 'Company X Treasury Vehicle 1 AB'. This company was later used as an organizational tool when Company X entered into the leasing business in a major way.

The manager who heads the leasing company previously worked for a finance company, and has been employed by Company X since the mid seventies. In the late seventies, he was asked to investigate the possibilities for Company X to enter the

leasing business. He found that the margins paid to the leasing companies were substantial and Company X decided to start acting as a lessor of 'big ticket items' delivered by Company X.

The different subsidiaries were informed about the opportunity to offer the prospective clients a lease contract for larger projects. In the late seventies, the first deal was made in France for a fairly large undertaking. The deal was fairly complex, as it constituted cross-border financing where the customer was in a fairly bad financial state; when the Swedish Export Credit agency, EKN, provided export guarantees, the financing could be conducted. The cost of the credit enhancement was paid by the customer.

A. Financial leasing

Most of the activities until the interviews were made have been financial leasing agreements, where the leasee acquires the product leased at the end of the period. The products leased have been those of the firm, sold by the firm's business areas. The firm or the business area selling the product will often keep some of the residual credit risk, thereby ensuring that the selling unit also is concerned with making a fair credit evaluation of its prospective clients. This is possible as the units generally know who the prospective client is and his/her financial standing.

A further area where VEHICLE1 is active is the provision of sales support to a small subsidiary of one of the business areas. The company came under attack from a competitor, and MSEK 12 was granted as a credit line to various customers. At the end of 1986, MSEK 8 of this had been used.

Furthermore, Company X leased all the company cars to its Swedish subsidiaries. At that time, the leasee could deduct 50 per cent of the VAT on the leasing fee. This reduces the cost for the cars by about 5-10 per cent of the cars' purchasing price while the Group can keep the deductions of

the cars. As the firm at the time leased more than 200 cars, they automatically obtained large volumes.

The total volume of leasing conducted by VEHICLE1 during six years in the eighties is shown in Table 5.2.

Table 5.2 Company X treasury vehicle 1 AB: Volumes and Flows for six years during the 80s

MSEK	Year	1	2	3	4	5	6
Stock, ultimo Dec.							
Financial leasing		29.5	29.5	25.1	53.0	52.3	41.8
Car leasing						10.7	17.2
Credit lines							12.0
Total		29.5	29.5	25.1	53.0	63.0	71.0
Flows							
Invoiced amounts		6.3	8.4	11.6	12.5	16.7	22.2
Credit lines							0.5
Sales of equipment				1.3	1.2	3.2	3.9
Total		6.3	8.4	12.9	13.7	19.9	26.6

B. Operational leasing

VEHICLE1 had plans to extend into operational leasing at the time of the interview; because Company X now has a new product, that it regards as unique, and where it wants to keep control over the equipment. Therefore, customers will be able to lease the equipment without being able to purchase it. The customer will either be offered an opportunity to return the equipment or the operator and Company X will sign a profit sharing agreement. The concept was introduced in the mid eighties but at the time of the interview, no agreements had been signed.

5.6.5.3 The background of the persons involved

The head of VEHICLE1 had no previous industrial experience before joining the treasury department at Company X. He has recruited the leasing company's personnel and does not require the employees to have experience from Company X's operations as customer knowledge is localized at the business

area level. Instead, the ability to communicate with people in these units is given priority over knowledge about the leasing business, the unit now has the financial knowhow and can train people in this respect.

5.6.5.4 Perceived advantages for the leasing business

The following advantages were stated:

- There exists a possibility to make depreciations for the purchased equipment, which is or will be leased before the money for leasing payments is made. Consequently, tax payments are moved intertemporally and this has a positive value if the firm has no other possibilities to shift taxes over time (see section 5.2.4 above for details).

- Previously, firms could use money from their escrow accounts at the Central Bank, 'investment funds', otherwise not earning interest for them, when acting as a lessor. This statute was changed in 1985.

These reasons are an advantage for the corporate sector, but they could also be attained by the corporations if they let a finance company arrange the deal for them, only booking the activity on the company's accounts. As the margins within the financial leasing business have decreased rapidly in the recent years, VEHICLE1 needs other advantages; and according to its manager they are:

- Initially, Company X used its own available funds to finance the leasing deals, charging the customer an interest rate between its borrowing and lending rate. Now Company X borrows to finance the deals, but it borrows at more favourable rates than the traditional finance companies. VEHICLE1 has a fairly good picture of the funding costs of finance companies, through the placement activities of the internal bank. VEHICLE1's size of the operations is so large that it needs fairly small margins to compensate for the fixed costs. VEHICLE1 has shown profits since it was established.

In operational leasing, proximity to the customer, knowledge of the industry and the fact that the marketing department can resell the equipment if it is returned makes it more likely that VEHICLE1 has a competitive edge vis-à-vis traditional finance companies.

5.6.6 Economies of scope for 'pure' financial service (D6)
Export & Import Financing (UNIT2) is a part of the Business Area finance. Its activities are external as well as internal; in the latter case, the question is more why the firm performs these activities itself instead of using more traditional financial institutions for this task.

The unit primarily engineers financial solutions for sales of projects to COMECON- and Third World countries. The credits are then granted by Company X or financial institutions. Five people were employed at the unit, four of them financial officers, with one, stationed at the treasury department of HQ, handling backoffice work. The officers are stationed with the business areas, as they primarily have to keep contact with the business area in order to be able to provide feasible solutions to their problems. On the other hand, they need a larger pool of financial knowledge to draw from, and therefore, although stationed at the business units, are part of UNIT2. The unit performs three basic tasks: finding financing, evaluating projects and selling risk.

5.6.6.1 Business volume

UNIT2 conducts an increasing amount of business. See Table 5.3

Table 5.3 UNIT2: Business volume and number of deals 1983-86

Year	1983	1984	1985	1986
Volume (MSEK)	160	110	710	rd.420
Number of deals;	20	34	41	40
Avg size (MSEK)	8.0	3.2	17.3	10.5

The upfront fee needed to cover the cost of the department was in 1986 approx. 0.4% per cent of the total volume handled.

5.6.6.2 Project evaluation

UNIT2 evaluates the projects from two standpoints: commercial and political risk. Technical risk is evaluated for the business area, but UNIT2 requires that a technical feasibility study is conducted in order to get involved in a project.

The credit evaluation is either done by the business area or the market company, whoever has the best position to evaluate the prospective customer. The knowledge about the customer is occasionally so intimate that no credit evaluation is perceived to be necessary.

The political risk assessment is made by UNIT2, which also tries to insure against the political risk of the deal, or to get credit guarantees from government agencies. This policy is due to the fact that the business areas do not want to carry this risk, which they otherwise would have to do. The political risk of a project is therefore either covered by government credit guarantees or sold off in the market for political risk. Projects that cannot carry the insurance premium will presumably not be carried through.

5.6.6.3 Background of personnel

The financial officers employed are in general recruited externally and consequently they do not have a background

from within Company X: the closeness to information about the customer is attained by the decentralizing of the officers to the Business Areas. The head of the department at the time of the interview has a background from industry, in Sweden as well as from several postings abroad for different firms and government agencies. He joined Company X in the early eighties and became head of UNIT2 in the mid-eighties.

5.6.6.4 Areas of joint production economy

Beside economies of scope when the credit evaluation is made, the firm perceives one further advantage. It is in a different situation compared to a project financing department of a commercial bank.

They bid for financial solutions to a supplier who in turn bids for a project, with a financial package. Their hit ratio³² will be a function of the number of financing that will be accepted by firms that bid for a project [G] and the hit ratio of these firms [H]. By definition, $G \cdot H \leq H$, and consequently the firm doing the bidding, will have a higher or equal hit ratio than the banks will. All things being equal, the firm will be cheaper per financing than banks.

5.6.7 Areas of joint production: (D1)

The manager of the Coordination Centre, saw the possibility of generating a large amount of different 'exotic' currencies as an advantage when dealing in the currency markets. The firm had one leg in a trade 'naturally' and could take positions on the basis of transactions costs for buying one of the currencies in a deal involving two currencies. A normal actor would not be able to do so, which gives the firm an advantage over financial intermediaries. As many exotic currencies are traded in markets that are not very liquid, this is important since the spreads between the bid and ask price could be substantial.

³² Number of financing actually performed over financing offered.

Furthermore, the presence of people in different countries gives the firm an informational advantage, as the people at the locations are more likely to obtain information about changes in e.g. exchange rates. The manager of the Coordination Centre gave recent examples on how this had helped Company X to make substantial savings. Information about the local financial markets are given approximately once a month by the person handling the financial issues at the local firm.

5.6.8 The international units: (D2)

Company X's international unit is located in Belgium. The firm's operations started in the second half of the 80s and the firm is equipped with an 9 digit SEK-equivalent equity. The firm initially handles the non-Swedish activities.

5.6.8.1 Activities

The unit was started in the mid-eighties and is responsible for:

- The handling of the Groups 'internal' currency risk, i.e. the financial flows between the Swedish units and their foreign counterparts. VEHICLE3 gives the selling subsidiaries exchange rates vis-à-vis the SEK which are revised monthly, by VEHICLE3. These activities capture approximately. 75 per cent of the internal flows.

- The Group's internal flows are netted, which results in approximately 30 to 40 per cent of the total flows of approx. SEK 3 billion per annum, i.e., there is a total reduction in the annual flow of approximately SEK 1 billion.

- VEHICLE3 acts as a bank vis-à-vis the non-Swedish subsidiaries and can refinance their activities, but the units were initially not forced to use VEHICLE3. With the further centralization of financial activities the units now have to use the unit.

- Furthermore, VEHICLE3 organizes a cash pool system where the local cash flows of the firm are placed. These have been established in some major European countries. These have the Group companies and VEHICLE3 as counterparts.

•The Belgian unit can take positions in the financial markets. It must not hedge the exposure for which it signs internal contracts. Instead, it can leave these exposures uncovered or increase the exposure.

•The unit also borrows money for other units, and is therefore equipped with a substantial equity³³ and this gives the firm a good base to conduct lending from. The manager of the unit perceives it as possible to lever the equity approximately eight to nine times.

5.6.8.2 Governance

The unit is controlled by limits set up by VEHICLE3's board which the head of the Group treasurer as well as the Vice President in charge of 'Economy and Finance' are members of.

5.6.8.3 Perceived advantage with a finance company

While the exchange rate regulations mentioned above were upheld, Company X's financial activities were impeded, and the formation of a financial arm outside Sweden was partially determined by the exchange rate regulations, some transactions were not possible to conduct in Sweden on behalf of non-Swedish units.

A further advantage is the tax situation for the units. A financial unit wants to take positions and lend and borrow money in an environment where taxes are as neutral as possible.

There is also a problem for a company of Company X's size in the small Swedish financial community. The parent company often obtains large payments in exotic currencies; that these payments are made to Company X is known in the markets and the currency traders will bias their two-way quotations against the selling bank of a currency when they know that

³³ The parent company is, due to currency regulations, unable to give any guarantees for this kind of borrowing activity and the amount must therefore be transferred legally to the unit.

there is large net supply of this, if the currency is traded in an otherwise unliquid market. This was exemplified with the situation in Stockholm in the early 80s, when the firm's bank connection had to sell large amounts of a specific currency and did so on the Swedish market. The bias in the quotations was so substantial that the bank started to sell the currency on the European market, and purchase it on the Swedish market, at a profit, i.e. the bid price in Europe was lower than the ask price in Stockholm.

This has two effects; first, it forces the firm to use a bank to sell its exotic currencies, in order to get two-way quotations from the 'inter-bank market' instead of the one way quotations offered by the 'corporate' dealing tables of the banks. Second, it gives the firm a worse deal than if it was more 'unknown' to the market.

In Belgium, the market's knowledge about Company X's cash flows is not as intimate as in Stockholm, and consequently VEHICLE3 faces less biased bids in Europe. As Company X generates 24 different currencies, this aspect becomes important. Furthermore, the Coordination Centre gets two-way quotations, i.e. they do not have to use a bank, charging a commission when selling a large amount of currencies. An internal bank in Sweden would still have to trade with the corporate desk.

5.6.8.4 Perceived advantage with Brussels as a location

The tax situation in Belgium was the most favorable for Company X. Furthermore, it was perceived that the location had an attractive currency regulation, i.e. none for Coordination Centres. Good telecommunications and general transportation together with a favourable price level in Belgium were also mentioned as influencing the choice.

5.6.9 Company X's spectrum of financial activities

Company X has the broadest activities of those companies studied. It has some external activities and many others

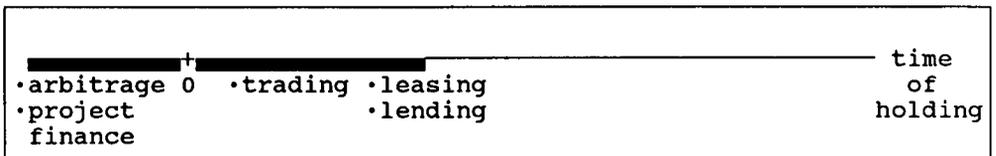
directed towards the Group company. There are 'pure' arbitrage activities as well as advisory internal financial consultants in the area of project financing, trading activities, direct loans, some at least during parts of the studied period, of a longer duration.

The firm conducts leasing activities, mainly towards its own customers. It has several treasury vehicles, all with different scopes and two of them with a clearly external scope.

The treasury company has made substantial deals in the Swedish capital market. Although the financial portfolio gap at times has been long, we do not consider the portfolio to be created for long term holding, the positions regularly being reconsidered.

We have depicted the treasury department's scope of financial activities at the end of the eighties in Fig. 5.11 below.

Fig. 5.11 Company X's spectrum of financial activities in 1986



5.7 Analysis and Concluding Remarks

In this Part we have studied three well-reputed Swedish manufacturing firms' treasury departments and activities. We have done so with the intention of describing their organization as such and studying their treasury vehicles and the development of the financial reporting systems over time. The interaction between the treasury vehicle and the industrial units is also touched upon. These relations seem to influence the scope of the activities which the treasury vehicles can conduct.

We also report our findings as regards the research directions, one by one. We will report some observations as regards the interaction between the treasury departments and the banking system.

The conclusions and remarks are based on the material reported in connection with the cases, and we will discuss the limitations of the generalizability and the reliability at the end of the chapter, but we already want to remind our readers that this Part will later be used in an 'Triangulation Approach': the conclusions that can be drawn after we have reported the results of the other two parts of the research project will be reported in the final chapter.

5.7.1 Organization

We have described the treasury organization of the three firms of various size in considerable detail. As a general remark, these firms seem to fit into a more 'Continental' model of development of the treasury function. In Robins and Stoubaugh's terminology, the firms seem to move from a 'domestic', first stage development into a third stage with an integration of international issues, but with a partially decentralized structure with regional responsibility. We can see how the studied firms operate with organizationally fairly complex treasury units, and without any international departments being developed (Stage II organization).

The organization is partially globalized, the view is global, but the centralization of cash management, etc is not in all respects conducted outside Europe. This reminds us of the last stage the firms described in Robin and Stoubaugh's study. This study is made for very large firms which are in this context smaller. They still seem to show the characteristics of these larger firms but without a dual structure. The firms integrate their exposure measurement worldwide and also integrate interest and exchange rate risk, some do this for the entire portfolio, others on a transaction

basis. The exposure management is still defined partially in translation and partially in translation exposure terms for all firms.

We will discuss the specialization of the units, the spatial distribution of the treasury operations as well as the interaction between the industrial units and the treasury operations.

5.7.1.1 Specialization of the treasury activities

We have seen how all the firms have started to decrease the working capital needed to run their operations, and that they as a part of their working capital programs have started to run cash management programs.

A. New systems

In all firms, these activities were preceded by a liquidity crisis, in Company X a minor crisis in one of its business areas, but which led to a dip in the earnings. These programs have also been described as successful and the firm's working capital situation has also increased. If this is a more general behaviour among Swedish firms, the centralization of cash to one unit would result in the parent company in Sweden attaining more cash. The 'over-liquidity' argument might hence be caused by better cash management. In this context the liquidity argument is 'myopic': the Groups are not 'over-liquid' but manage their liquidity better. A combination of increased Group liquidity and centralized cash management might also create this impression of 'over'-liquid parent companies.

At least in our firms, we have observed this pattern. ESAB has strained its liquidity in order to expand into a market leader position, Swedish Match made several large purchases and Company X has over the studied period made several purchases that require large cash outlays. It seems more to have been a trend towards the centralization of cash to one or a few points in the Group's organization, motivated by an

increasing cost of capital. In one of the firms, Company X, the introduction of a separate treasury vehicle was preceded by the creation of a formal internal bank.

The firms have attained a more detailed knowledge of the future cash flows of the firm through these systems. They have also made more complex studies of the total exposure of the firm. ESAB, Swedish Match and Company X all have a view where the exposure to at least some extent is related to the reported profits and where translation exposure is consequently considered.

B. Treasury vehicles

The studied firms have all performed some of the activities within special purpose treasury vehicles.

Of the studied companies leasing was conducted primarily by Company X, also Swedish Match was also in the process of starting primarily operational leasing activities, and ESAB originates leasing. These activities are in some instances performed by separate vehicles.

The firms coordinate their financial operations from Coordination Centres, which both handle internal as well as external activities. Initially the scope was mainly European but the firms have gradually integrated larger parts of their operations into these Coordination Centres. ESAB as well as Company X had integrated operations except in high inflation countries where the money has to be handled locally.

Internally, the Coordination Centres handle cash management issues as well as the internal hedging activities. They act as borrowing vehicles for the firms, but also conduct some trading and arbitrage activities. In Swedish Match, and lately in Company X, all actual dealing is conducted by these units. We perceive a tendency to centralize the entire dealing activity to one location.

The prime reason mentioned for forming these units has been

the exchange rate regulation, which has made it impossible for the corporate treasury department to conduct those treasury operations which the units were allowed to conduct abroad but which the parent company, subject to Swedish regulations was unable to conduct. Therefore, the Group either had to have these activities decentralized at each non-Swedish unit or to start their own non-Swedish Coordination Centres abroad.

Our interpretation is that once the firms decided to decrease the need for working capital and initiated cash management programs they started to try to pool together cash in order to be able to net the internal flows. This had two positive effects upon working capital; it decreased the need for funds as the flows internally decreased; and the subsidiaries' payment discipline increases, which made it easier to predict the liquidity needed.

In order to gain these advantages in their European units, the firms had to centralize the cash flows. Initially this was done on country levels, the firms created cash pools in countries where the firm had several units. With the help of the Coordination Centre or a finance company, the firm was then able to create a European pool of cash which it could use to centralize the transactions and pool the cash. Thereby, the firm could decrease its transactions costs, as well as holding lower level of liquidity at operations. It should be noted that the cash remained in the accounts of the different national cash pools and was not centralized to one central account, except in ESAB where major cash amounts were deposited at the European account, for those units in countries that allowed their domestic firms to send money abroad to such an account.

Together with the handling of the netting and the cash management of the European countries, the Coordination Centre also handles the hedging of the unit's exposure, how this is handled organizationally will be discussed in section 5.7.1.3

together with the question of centralization and decentralization of the financial issues within the organization.

The Coordination Centres also have a role as corporate banks vis-à-vis many of the Groups' subsidiaries. The basic idea is that the subsidiaries that are active on the local market usually borrow from banks to finance their activities. If the parent company, on the other hand, borrows money from a bank or from the capital markets, they attain better borrowing rates. Therefore, it is advantageous for the parent company to borrow as large amounts as possible and then lend them to the subsidiaries. This is in fact done.

In addition to these activities, the firm must be able to borrow and lend money without paying any taxes for the financial activities. Most countries do require that the firm deduct or pay a withholding tax on interest paid when the receiver is localized outside the country. As the loans are made between legal entities, although in a Group, the firm's internal bank will be treated as a normal lender vis-à-vis the Group units, and hence the borrowing unit would have to pay withholding taxes when it pays the Coordination Centre interest.

As we have discussed in 5.2.4 above, this creates situations where the firm will be taxed for basically internal transactions, which on a group level would be 'washed out'. In order for the firms to be able to create borrowing vehicles, the firms have to find an environment where the internal transactions are 'tax-neutral'. The Coordination Centres or the finance company in the Netherlands are, through their special tax status, in a situation where the tax-situation is such that it can act as an internal bank without negative tax consequences for the Group. This is a further reason for the firms to form Coordination Centres.

We have also seen how the Coordination Centres are engaged in

trading activities. In both Company X and in Swedish Match the person heading the Coordination Centre activities had long experience from some operative unit and knew fairly well the cash flows that the firm can attain. In combination with the budgets, cash flow reports and projections as a base, the firm knows the transaction exposure of the firm.

In ESAB, the main dealing activity has been conducted at the HQ, but late in the studied period the Coordination Centre started a dual dealing desk. Company X also had dual dealing function for a fairly long period, and the firm maintained this as they wanted to create a situation with internal competition, where both units were competing against each other. Later on, the firm moved all actual dealing to the units in the Coordination Centre mainly because it did not perceive the gains from internal competition warranting an extra expense of MSEK 2, especially as parts of the Swedish capital markets had become less liquid due to a turnover tax imposed upon trade in the capital market. The tax situation was seen to be uncertain for a long period of time, and trading was therefore moved to Belgium.

Swedish Match conducted its trading activities from the coordination centre under an elaborate system of guidelines set up by the treasury unit.

In Sweden, Company X started a treasury company (VEHICLE 4) which conducted some of the Swedish cash management activities and the also some of the trading activities. The transformation of the internal bank into a separate company was motivated by two factors: first, the need to get personnel which was easier if they were to work in a separate company, and, second, with a company which has trading in marketable securities as its main line of business, the firm is able to make reservations for expected losses on these securities, a right it would not have if the trading was conducted within the parent company.

D. Summary

To summarize, we have encountered in this study: three Coordination Centres, various constructions of cash pools or European Group accounts in order to increase the efficiency in European cash management, two leasing companies, and a treasury company in Sweden all performing a specialized treasury task, some of them abroad. The geographical split between the units seems primarily to be primarily created by a need to arrange European cash management in an environment where Swedish exchange rate regulations hindered the treasury's activities.

These units also perform other tasks; in-house banking, dealing and netting. The units were localized in those countries which give the firms the most tax-neutral locations: Belgium and the Netherlands; these countries offer the best sets of double taxation treaties and a special waiver with regard to payments of withholding taxes. The infrastructure, tax situation for personnel and manning requirements seem to influence the choice between those countries which provide a tax-neutral environment.

Company X perceived as a further advantage with a non-Swedish unit that the local markets had less information about the firm's cash-flow, to use a related concept; that the psychic distance between the firm and the financial markets increases, and that they therefore got less biased bids in the markets. Furthermore, the two-way quotations were seen as an advantage.

The formation of companies the Swedish treasury departments seems to be motivated by the need for qualified personnel, as well as requiring that the firm receives the same tax treatment as ordinary finance companies.

5.7.1.2 Decentralization-Centralization

One aspect of organization is the governance of hierarchies. Such issues are also affected by and affect the treasury

operations. We will first study how the treasury activities are governed within the firm, and we will, furthermore, describe some aspects of how the treasury operations are affected by the management evaluations system of the firms. Finally, we will see how the creation of an internal market within the firm has solved some of the problems connected with the centralization of currency exposure management.

A. The governance structure

All firms have created a system to set limits for the extent of financial risk which the firms can engage in. In ESAB, which has the most transparent organization, there are limits set which ultimately were set by the Managing Director and there is a hierarchy of limits with the MD, the Group treasurer and the assistant treasurer given authority to approve deals. The same structure was used in Swedish Match, but instead of letting the Board review the limits, the limits were actually set and in terms of a worst case scenario. Company X uses a similar system without a worst case scenarios, but it uses a special 'Finance committee' with representatives of the management board as well as of the firm's board of outside directors. This committee formally approve limits and can meet more often than the entire board.

In the firms studied the owners' representatives are kept well informed about the activities and are given the opportunity to determine the level of financial risk that the firms engage in. The systems controlling the treasurers' activities are at times fairly elaborate.

B. The evaluation system

The firms' systems for evaluating the performance of the industrial unit managers seem to have a fairly strong effect upon the ability of the firm to engage in financial activities. In ESAB, the different industrial units are evaluated on the basis of their profit, after financial costs. Managers, quite naturally, want to control financial

decisions. The corporate treasurer has to provide the firms with the financing they want to have at market prices. The treasury unit is therefore not a profit centre, but a service centre.

Swedish Match has had a different evaluation system since the beginning of the 1970s. Managers are evaluated from the point of view of the return on total capital used minus cash plus the net of accounts receivables and accounts payable. The Treasurer has therefore had direct control over the financial structure of the subsidiaries financial structure, which proved important when the firm wanted to structure the firm's financing from a global point of view.

Company X initially had a system of principally evaluating their industrial units on the basis of the results after financial costs and income and the units were therefore interested in having some degree of control over the financial structure of the unit's balance sheet. This was then changed, explicitly in order to relieve the units of their financial burden and the industrial units are now evaluated on the basis of the operative income before deductions for interest rates and variables and other market oriented measurements. The result is that the centralization of financial decisions to the Group's treasury units has increased. This has enabled the treasurers to make decisions on a global basis, without having to consider the effects on reported profits for the units. Furthermore, it has made it possible for the firm to get total control over the cash flows of the firm's units.

We have here only sketched the observed interlinkage between the evaluation system and the degrees of freedom the treasury enjoys. It seems as if, at least for these firms, that the evaluation system has had an impact upon the operations of the treasury, and possibly that the perceived need of the treasury can be a force changing the structure of the evaluation system, an observation of interest to those who

want to structure such systems.

C. Internal hedging contracts

The evaluation of the managers, and the implicit responsibility for the financial variables has also had an effect on the organization of the activities in another respect. In two of the firms, the treasury department issues hedging contracts vis-à-vis the industrial units. These contracts can then be secured in the market or left open. The final exposure of the Group is thereby determined by the specialists at the treasury, but responsibility for the effects of the exchange rate on local business is still placed with the firm's industrial units, where it definitely should be placed, according one of the CFO. ESAB on the other hand centralizes most of the exposure by letting the parent company invoice its non-Swedish subsidiaries in SEK at predetermined exchange rates. The exchange risk is thereafter handled by the treasury units. Here local management are responsible for the remaining exchange rate risk. They are also evaluated on the basis on ROE.

Internal contracts are an interesting application of an internal market within a firm. It makes it possible for the firm to shift responsibility in two ways. The industrial units maintain responsibility of the exchange rate's effects upon the operative income and costs, while the treasury is given the opportunity to be better predictors of the future development of the exchange rates than the industrial units, and will only be able to profit from the activities if they really are better at forecasting the future exchange rates than the industrial units.

Before we turn our attention to the research directions as regards financial intermediary activities of the firm we want to summarize our discussion of the organization of the treasury department with a few remarks. We know that the firm has different ways to get information about the uncertain outcome by internal systems both reporting internally the

sales and results of the different units. What we also know is that the firm is a hierarchical institution, where authority is distributed within the firm. For a description of the firm from chapter 4 above, see Fig. 5.12 below.

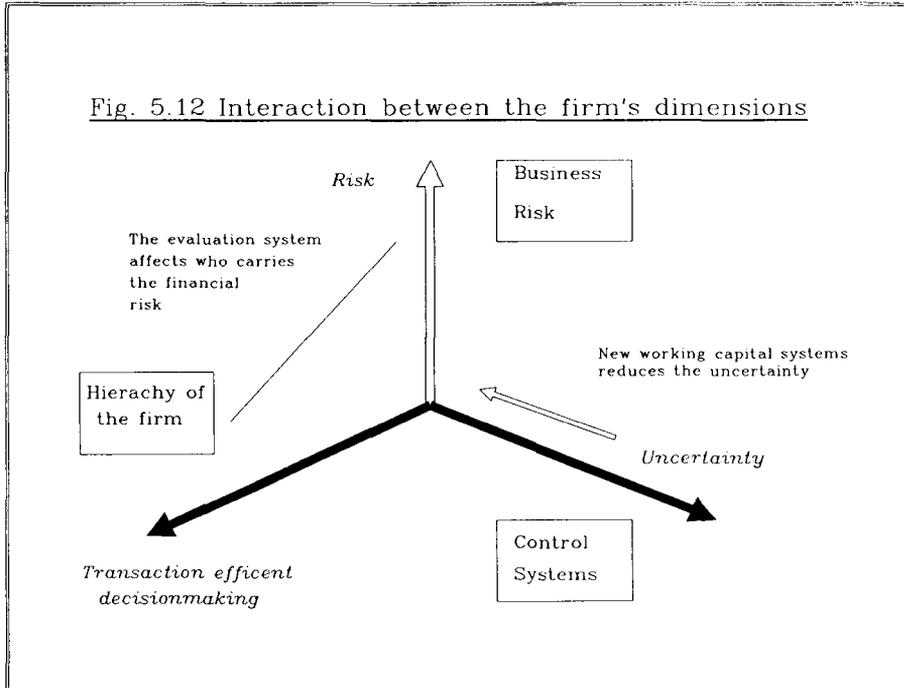
In this context we have studied both the bold arrows and their interaction. The firm's financial decisions have to be handled within the firms hierarchy. Furthermore, the firm has created new systems to manage cash-flow within the firms hierachy, centralising it. But the data which the treasury department requires is not only ex post data, but also data which reduces their uncertainty about size of the future financial flows, and budgets for cash as well as for currency denomination of cash flows are required.

These systems reduce the uncertainty of the future, and enable the firm to conduct cash management as well as dealing activities in the financial markets.

They will also affect the result of the managers responsible for the industrial activities of the firm, if they are measured by performance measures that are in their turn affected by the structure of the financial positions. Therefore the firms seem to be moving in a direction towards relieving the industrial units of their responsibility for the financial decisions. They cannot relieve the industrial units of the responsibility for the exchange rate composition of their operative flows, so instead of totally centralizing these issues, they have centralized them, but simultaneously created an internal market that enables the operative units to create their own currency exposure. Together with reports about the future currency composition of the cash flow, the firms can create their own financial positions.

This concerns the risk of the firm and how it is handled. There are two things to be said about this. First the firm creates from different cash management, exchange rate exposure measurement systems and internal hedge market a

picture of its financial risk, reducing uncertainty. We will in Part B look at the way in which risk is affected by the treasury department's activities, the unfilled arrow in the figure above.



5.7.2 The research directions

At this stage we will start to study the external financial activities of the three firms. The structure of this section is based upon the different research directions we have followed when conducting the case studies.

5.7.2.1 D1: Economies of joint production

We have searched for perceived economies of joint production as regards the lending activities and the arbitrage

activities.

A. Lending

Of the highest ranked financial officers interviewed in the three firms, one had a background from the civil service, one as a treasurer of one of the larger municipalities; two had mixed banking and industry careers, but none of these officers had worked in industrial line positions in the firms they were active in. ESAB engages in some lending to Third World countries, and here the question is one more of sovereign or political risk, and ESAB has no competitive advantage. At the time of the interview, Swedish Match only marginally engaged in lending activities.

Company X's lending activities are directed more towards its customers, but the project financing was mainly facilitation of financing, so-called financial engineering, although to some extent credit risk remained with the firm. Here we once again see the link between the internal evaluation systems and financial activities. Instead of centralizing industrial and customer know-how to the financial department, the firm decentralizes the project evaluation to the business area, and furthermore, lets the business area initiate the lending activity. The business area carries all the remaining credit risk, ensuring a proper evaluation by the unit having the know-how. Knowledge about the clients was also said to be good, occasionally so good that a formal credit analysis was not warranted.

As we did not encounter very significant direct lending activities within our studied firms, the argument about shared computer capacity is not relevant.

B. Dealing

There were several advantages perceived when the firms were dealing in the financial markets. Company X mentioned that they generated several exotic currencies and that was an advantage when they were dealing in the financial markets. A

position in a certain currency made it possible for the firm to take a position against any other currency, with one leg paid.

A less subtle advantage was the network of financial officers responsible for handling cash or other financial matters in many countries. Some Swedish banks have fairly broad networks, but these networks are dwarfed by the network of Company X and Swedish Match. Through the representatives, the financial officers obtain information about the current business conditions and expectations in the countries, and consider that they had been given good advice.

It is difficult to assess the value of this network without intimate knowledge about the operations of Swedish banks and their respective coststructures, but it seems plausible that banks at least have to purchase reports and compile them or make their own country analysis in order to be active in more exotic countries' activities, which would be costly.

5.7.2.2 D2: If the international units lend money to non-Swedish agents

The studied firms did lend money to non-Swedish customers, but these activities were either performed as leasing activities or they were conducted by the parent company. The financial arms of the firms studied were Coordination Centres, which cannot lend money, and finance companies in Sweden. The direct lending to primarily the Third World was directed by the treasury departments and did not involve the Coordination Centres.

5.7.2.3 D3: Regulation induced activities

All firms did use non-used tranche of the permissible 'hedge'-contingent to lock in a spread in the interest paid on Swedish investor grade bonds and the cost of borrowing in the foreign markets plus the cost for a hedge.

We cannot determine from this case study why this arbitrage

opportunity has arisen, but we can clearly see why it might exist for a long period of time. As we described above, the firms are only allowed to hedge a limited amount. As long as the real interest rates are higher in Sweden than elsewhere, as they seem to be (see section 5.2.1-5.2.2) the usual Fisherian relationships cannot be upheld.

The amounts are fairly substantial, but these activities are not described as particularly essential to the profitability of the treasury operations. Nevertheless it is basically a "free lunch", and therefore the firms engage in these activities, which pay for at least a major part of the treasury operation's operative costs.

Further arbitrage opportunities seem to exist. According to the head of Swedish Match's Coordination Centre there exist in some countries with administered interest rates exists separate interest rates for borrowing with the purpose of conduct financial and industrial activities. Industrial firms can arbitrage these markets, something a 'pure' financial intermediary would have difficulty in doing. Company X has pursued several types of arbitrage opportunities. Once again, in this context it is essential that the treasury department can conduct these activities without interfering with the measurement of the performance of the industrial units.

5.7.2.4 D5: Leasing

All three firms performed some leasing activities during the studied period: Swedish Match mainly engaged in some operational leasing and minor amounts of financial leasing. ESAB mainly leases its own equipment, but also originates leasing contracts for their customers in various countries. Company X is more actively engaged with outwardly-directed leasing of its equipment to its customers as well as leasing of its own equipment to others. There seem to be two basic types of rationale for leasing to be performed by the unit itself: sales incentives and tax purposes.

A. Taxes

The Swedish regulation of leasing had some advantages which gave the firm the opportunity to make deductions for the equipment, i. e. to postpone taxation until later (see section 5.2.4 above). This could be advantageous for a firm, but it does not necessitate the formation of a leasing company. Such leasing agreements could be written directly by the company with the entire financing being performed by a 'pure' financial intermediary. Other reasons have to be found for the firm to form a leasing company and perform the origination as well as the actual financing. One reason mentioned by the head of the leasing company at Company X was that the finance companies margins were perceived as large before industrial firms entered the business. When the margins shrunk, the treasury's leasing companies could stay competitive, as long as the volumes were large enough in order for the firm to be more cost efficient than if they had let the finance companies to arrange the deals.

Some advantages had ceased to exist at the time of the interview, i.e. the firms during a period could make use of money set aside in escrow accounts at the Swedish Central Bank when they financed a leasing deal.

When conducting a leasing deal with group units the firm got an advantage, the leasing company could make use of the over-deductions against its profits, and simultaneously the subsidiaries leasing the equipment could deduct 50 per cent of the VAT on the leasing payments.

Internationally, we have seen that Company X is willing to lease equipment to its customers if there are tax advantages. Until the investment tax credit was abolished in the U.S., the firm leased their equipment to customers, but lately they have mainly originated leasingcontracts, not actually performing the leasing deals themselves.

The same company had a leasing company in Spain that was

closed when the taxadvantages were removed. It was seen as better than starting to arrange leasing for agents not purchasing the firm's products. ESAB encountered a similar situation, and also gave up plans to start a leasing company in the Netherlands.

B. Funding advantage

There was said to be a funding advantage for Company X, as it was able to borrow below the rates at which the finance companies borrowed their money. Nevertheless, in our view this might be true, but this would only constitute an advantage as long as the firm would not increase its debt without increasing the weighted average cost of capital for the entire Group.

C. Operative leasing

Two of the firms started projects towards operative leasing at the time of the interviews, i.e. the firm provided equipment with some kind of operational responsibility towards the lessor.

In both cases, it was products which the firm wanted protected and which were regarded as fairly unique. Two further advantages were mentioned in this context: first, the firm could keep control over the equipment, the ownership of the equipment was in the hands of the firm, which presumably prevents the development of a second-hand market of the equipment. Second, if a customer defaults on his leasing contract and the firm has to take back its equipment, Company X can use its own sales organization to sell the equipment. The firm thereby probably attains lower credit losses than an ordinary finance company which has to get the products sold, presumably at a fairly large cost.

D. Origination as a sales incentive

All firms originated leasing and used leasing as a way to increase sales. It is interesting to note that initially, although on a small scale, leasing was seen as a means to

sell a product where it was difficult to find takers, the result of a barter agreement with one of Company X's customers. The firms believed it is possible to increase the sales of the product by originating leasing contracts. From a cost point of view, it is presumably a question of distribution advantages, where the tied-in sales of leasing financing are cheaper than the combined cost of distribution when both product and financing are sold at separate venues.

The tie-in aspect of leasing seems to be robust as this service is offered also by those companies explicitly having no use of any further depreciation to postpone taxation. The provision of credit was seen as important by ESAB in countries with high interest rates, as this would have indicated a credit squeeze in the country.

5.7.2.5 D6: Pure financial service

We have, in section 5.3.1, indicated that we failed to study a firm with a broad span of 'pure' financial services. To our knowledge there are only two manufacturing firms in Sweden providing this kind of service, at least to judge from the material publicly available: Volvo and Asea³⁴. Both these have a broad span of pure financial service companies in their financial divisions. As we have not been able to study these firms, we are basically unable to make any statements about pure financial service operations.

We can only make one empirically founded remark about the internalization of project financing activities: the fact that a firm creates its own solutions for more complex project financing. A cost advantage vis-à-vis the banks might arise from the fact that the firms get a hit ratio for their proposed financing which is greater or equal to that of the typical bank, i.e. the bank will first have to become the bank that is included in a firm's tender for a project, while

³⁴ The study was initiated a couple of months before the formation of a joint venture between Asea and the Swiss corporation BBC.

the internal department will automatically be included.

Unlike the case of normal vertical integration, the firm will be able to check the quality of its project financing department's work as the financial terms of the various tenders will be transparent and any disadvantages stemming from poor work on the financing will be detected by management immediately.

5.7.3 Interaction with the banking system

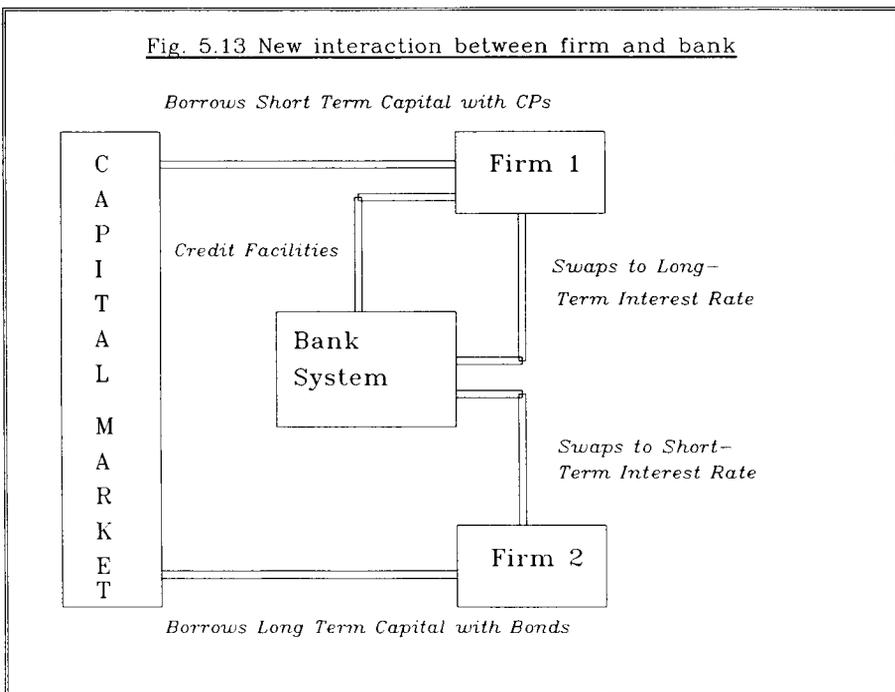
There are some aspects of the way the firm funds its dealings in the capital markets that should be discussed as they have bearing on the macro level creation of credit: all three firms borrow money primarily in the USD market by issuing short-term commercial papers. By swapping the short term money against other parties' loans the firm can create the same kind of payment streams as if it was borrowing long term money, with the favoured interest rate base and currency denomination.

Although the firms through these activities do not borrow money from the banking system, they still rely upon the banking system. The banking system interacts with the firms in two ways:

First, the swaps are usually arranged by a bank and the bank thereby guarantees the performance of the swapping partners. If one of the partners involved defaults on a loan, the lender of this money will lose the defaulted part of the loans. This does not involve the bank, but if the bank has arranged the swapping contract, i.e. basically taken the interest serving part of the loan on its books and then swapped this loan against the payment streams of another type of loan, then the bank has taken upon itself some market risk. If financial prices have changed at the time of default of one of the parties, then the bank will have to see that the payment streams originally agreed upon are paid to the other party, see Fig. 5.13. This means that the banks are

still exposed to market risk, if there is a risk of default for one of the parties involved.

Second, if the party borrowing the short term money is unable to sell its commercial papers, the firm runs into liquidity problems. In order to assure liquidity in such a situation the firm purchases so-called credit facilities. These constitute a promise by the banks to borrow money if the firm demands it. The terms of borrowing are pre-determined and the firm has to pay an annual fee for the unused parts of the committed amount.



We can therefore conjecture that the firms are still, at least partially, linked to financial intermediaries. The banks still have a competitive advantage vis-à-vis the firms as they have core deposits, which they can draw upon when they guarantee the liquidity of the firms borrowing money in

the USD-commercial paper market. Furthermore, the firms rely on the banks when evaluating the creditworthiness of their swapping partners and are presumably prepared to pay for this evaluation of the swapping agent. What we seem to observe is not a total detachment of the studied firms from the banking system, no total disintermediation, but a partial one, where the parties specialize in different activities. Furthermore, the distribution of the commercial papers is in general handled by the banks, but Company X has also arranged some private placement, issuing direct loans to investors abroad, so the disintermediation of the distribution of the loans seem to be ongoing.

The background of the financial officers indicates this, as two of them have been pioneers in lending on the international capital markets. Both KK and PL have long experience in borrowing in these markets and are well experienced in this respect. The head of Company X's treasury operations had not directly worked with borrowing on the foreign capital markets, but from his senior position in a financial intermediary was well informed about the possibilities open in the markets.

5.7.4 Validity and Reliability

We have reported our findings here from three case studies performed on companies with a reputation for having well-organized financial activities.

5.7.4.1 Generalizability

Our findings here are not to be considered as evidence of any hypothesis stated at the outset. They are merely a step, in our opinion a significant step, towards stating hypotheses about the firms' treasury departments. These results will be combined with the results from the survey and the public information we gathered. We might then be able to say that a direction has been established and it is more likely to be a fruitful path to continue to study along. We have therefore not falsified any of the directions which in our case studies

have seemed to be uninteresting. This is as we only have three observations, which is not enough to test any hypothesis.

5.7.4.2 The reliability

As to the reliability of the description as regards the three firms, a few things are to be said. We have followed the Yin's recommendations in how to conduct a case study, by applying a multitude of data sources which could be cross checked. The interviews of several officers, the collection of external data and the collection of internal data in two of the firms has enabled us to increase the precision of the interview study.

Furthermore, very detailed financial data from two of the firms as regards the financial positions has been gathered and evaluated, see below, and these have made us able to cross-check the volumes and the statements made in this interview study.

We therefore believe that the description presented above has a fairly high reliability and provide a good picture of the firm's financial activities, along our study directions.

Our research design has faltered in two respects: first, we were not able to find a controlling case. In retrospect this is also not too surprising, as the firm which is the controlling case might perceive it as a fairly uninteresting role - they might be accused of neglecting something important. As they would not conduct the studied activities they have no interest in a further development in the field. In our case, the interest for the activity seems to have picked up after the case study was initiated.

That we did not get a controlling case is important for the discussion of financial intermediation and to some extent the organization of the treasury department. We might have gained insights into what aspects are of more interest when a firm

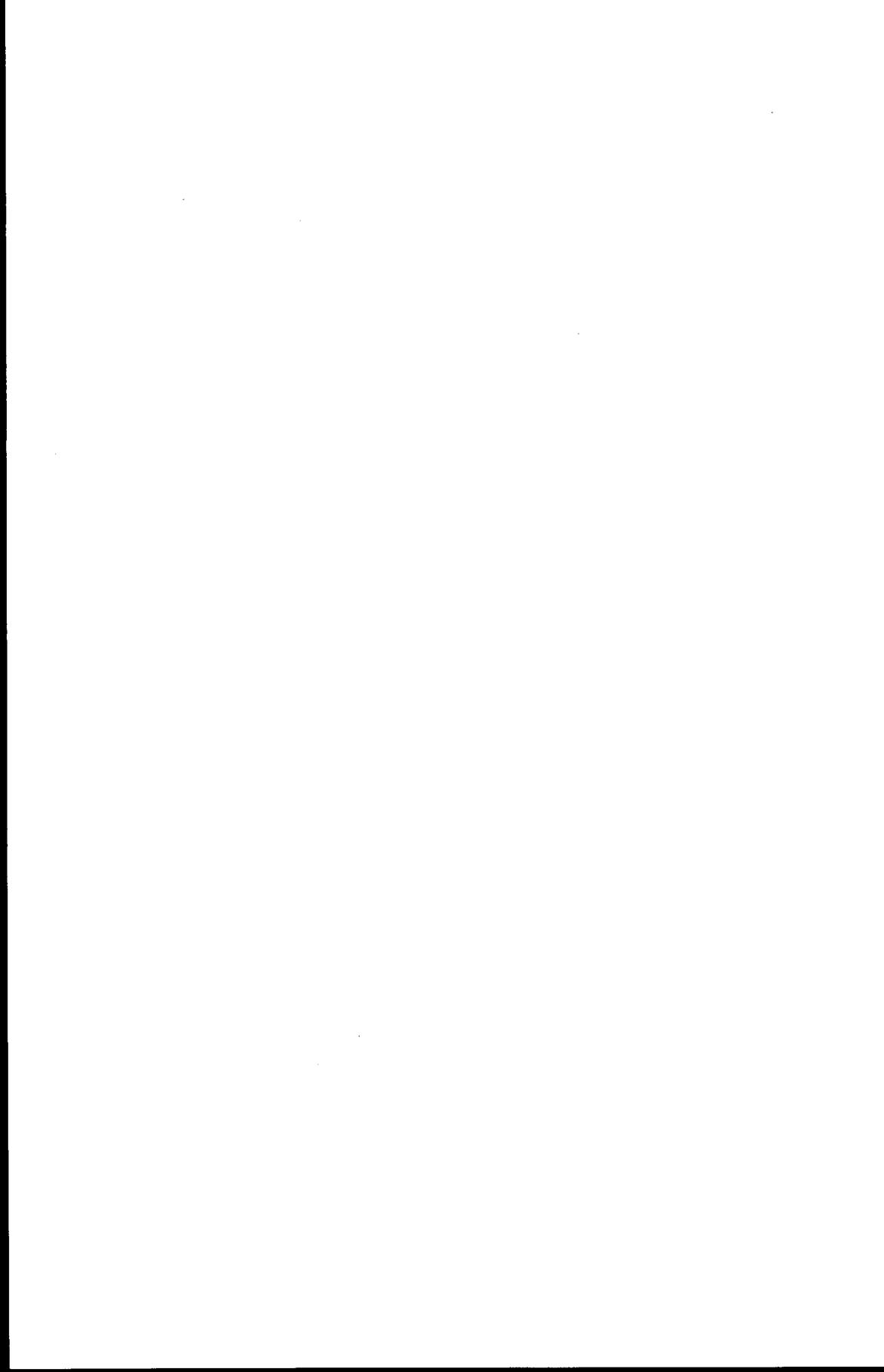
conducts financial intermediary activities towards its customers as well as insights into why firms make use of treasury vehicles. This might have made it possible to further strengthen our conjectures about the relevant research directions.

Second, we have not been able to conduct a study of a firm engaged in externally directed 'pure' financial activities, and we are therefore not able to make any statements about this research direction.

In this study we have not been able to capture all the details about how arbitrage activities are conducted and exactly in what manner taxes affect the direction of flows and the competitiveness of the manufacturing firms compared to other actors in the financial markets. We will now turn to how the treasury departments handle the business risk.

Part B

In this part we pursue the case study direction 4, in order to discover in what manner the total financial risk of the firm is changed by the firm's financial activities. This is related to the question of whether firm's are able to accept financial risk due to their operations (Hypothesis 4) or whether firms only react upon segmentation in financial markets which distort prices (Hypothesis 3). In order to measure operational risk we specify a yardstick according to which we want to measure both financial and operative risk. The latter will be measured as if there are deviations from the so-called Fisherian parity conditions. The dimensions of a measure integrating both financial and operative risk will be discussed in Chapter 6 together with the yardstick used and its limitations. In the following chapter we will present the case, and discuss the results.



CHAPTER 6

The Yardstick

6.1 Introduction

In Chapter 4 we discussed the possibility that manufacturing firms - active in both the good and the financial markets - might be able to absorb financial risk. They would therefore be able to create some value added for its owners. Two possibilities were perceived: either the owners are unable to take positions in the financial markets by themselves (Hypothesis 3) or the firm is able to reduce its risk by absorbing financial risk (Hypothesis 4). The latter hypothesis requires that some kind of real-financial linkage exists, making firms' financial decisions interesting to its owners. In both cases, an inability to assess the effects upon the firms' profits over different states is a necessary condition. Otherwise, the owners themselves could take the financial positions they prefer, with the firm's stock.

We stated at the outset that, for the time being, we are unable to test the hypotheses, as we are not able to determine whether there exists any real-financial linkages. We could have treated hypothesis 4 as joint hypotheses of the existence of a real-financial linkage and firms conducting financial activities on the basis of this real-financial linkage. As a one-case study cannot test such a hypothesis, we chose to handle these issues as a more limited research direction.

In this part we follow this research direction. First, we discuss the existence of real financial linkage with an emphasis on real financial linkages affecting the exchange

rates. Second, the measurement of financial risk given the chosen real-financial linkage will be discussed. We go on to describe a crude measure of the contractual exposure of a firm and construct a crude yardstick of the non-contractual exposure of firms' cash-flow to exchange rate changes, given the chosen model of real-financial linkages. The chapter will be concluded with a description of how the two measurers are brought together. In the following chapter these measures will be applied to a specific company.

6.2 Real-financial linkages; possible causes

Besides the real interest rate, there are several possible linkages between the real economy and financial prices. Here we briefly discuss three of these possible linkages: real interest rates linked to the business cycle, inflation and nominal contracts and finally purchasing power parity distortions.

6.2.1 Real interest rates and the business cycle

The effect monetary variables have upon the real sector has always been debated. For classical economists like Mill money did not matter, as he did not have to integrate a financial side into his models: gold or silver was used as money base and there existed a real-side demand for precious metals, the price of money was determined in the good market (Siebke and Willms (1974, pp. 34,35)).

Economists did not consider money to have any influence upon the real side activities. Money was only a veil which depicted the workings of the real side of the economy. Therefore, the quantity of money only influenced the nominal prices and not real prices and real activity. The neoclassical economist, though, did model the effect a change in the monetary base would have upon demand for money and supply of money. Wicksell (1898) dynamically modelled the impact changes in the monetary base had on interest rates, national income and prices of good and made a distinction

between the real interest rate and the nominal interest rate. The increase in the monetary base would force down the nominal interest rate thereby increasing the national income, but this change was only imaginary as the increases in good prices accompanying the increased national income keep the real national income constant. Irwin Fisher would later integrate this in to his 'Fisherian relations'

Keynes might have considered that money, or rather the monetary base M , has an influence on the real activity. He introduced a speculative holding of money into the demand function of money (liquidity preference), based upon the notion that prospective investors would anticipate a change in the interest rate and therefore, at times, want to hold money instead of interest earning assets. The interest rate is determined by the interaction between money demand and supply, the latter determined by the Central Bank, and thereby also partially controlled by the Central Bank³⁵.

One of Keynes' contributions was the introduction of the speculative holding of money. This speculative holding added a further component to the money demand function, besides the transaction demand for money. This speculative holding has in later interpretations of Keynes' work (see Siebke and Willms (1974) been seen as a result of the expectations about a change in the value of money. If there are expectations that the interest rate will fall, investors are supposed to hold money and then invest them in fixed interest securities. The change in the monetary base will then affect the interest rate change. The interest rate, in turn, will affect the capacity utilization in the economy and the national income will be affected.

If the profitability of a firm is dependent on capacity utilization or the national income, the change in the monetary base will also change the value of the firm's

³⁵ This is true as long as the demand for money is not perfectly elastic.

operating profits. Therefore, there exists a linkage between the financial structure's sensibility to the monetary outcome and the operative profit's sensibility to the same outcome.

The value of the firms equity:

$$Eq \equiv \pi_{Op}[Y] - D[i] \quad (6.1)$$

where

Eq \equiv the equity of the firm

π_{Op} \equiv the profits from operations, dependent upon:

Y \equiv the national income

D \equiv the market value of the firm's debt

i \equiv the market interest rate

We know that in a Keynesian process:

$$\frac{\delta Y}{\delta M} > 0; \quad \frac{\delta i}{\delta M} < 0$$

where

M \equiv the monetary base, controlled by the monetary authority

Consequently the following occurs if the monetary base M is altered by the Central Bank:

If $M \uparrow \Rightarrow i \downarrow \Rightarrow \delta Eq \downarrow$: the market value of the fixed interest debt issued rises if interest rates rises:

If $M \uparrow \Rightarrow Y \uparrow \Rightarrow \delta Eq \uparrow$: the increased national income results in higher capacity utilization and increased profits.

The final impact upon the value of the firm's equity will depend upon whether the financial losses due to the change in the monetary base are compensated by the increase in the operational profits.

Likewise, if $M \downarrow \Rightarrow i \uparrow \Rightarrow \partial \text{Eq} \uparrow$: i. e. the value of fixed interest debt decreases when the interest rate increase but the lower real activity will decrease capacity utilization: $M \downarrow \Rightarrow Y \downarrow \Rightarrow \partial \text{Eq} \downarrow$. Once again the final effect upon the profit is uncertain.

It is obvious that if the firm refinances itself with some fixed income debt, it will be less sensitive to changes in the interest rate than will a financial intermediary, which carries only financial instruments in its portfolio of assets and liabilities.

If there is a premium for carrying interest rate risk, i.e. for transforming short term money into long term money, firms whose operational profits are interest rate elastic could structure their financing in such a way that it carries interest rate risk, and could do so by e. g. purchasing financial assets or by lending fixed interest money to the customers.

Recent evidence (Fama and French, 1989) seem to corroborate the view that the return on stocks and bonds is correlated to general business conditions. In effect, the results of the study indicate that the expected return on bonds and shares is higher when economic conditions are bad, and lower when conditions are good. This too seems to indicate some kind of real financial linkage to the pricing in the financial markets. The monetary base thereby becomes a determinant of the real activity in the economy. This also means that real activity and the interest rate might co-vary with one another. The question is to what extent. Blanchard and Fischer (1989) conclude their treatment of the issue, with the judgment that money per se matters, but only to a minor extent. In order for money to be of great importance to real activity, other factors have to be included in the models than just ordinary money demand, derived from holding of money or transaction costs in connection with visiting the

banking system³⁶ (pp. 192-193).

6.2.2 Inflation and nominal contracting

Several authors have studied the relationship between the value of the firm and inflation. Fama and Schwert (1977) find that there is a negative relationship between the stock market's valuation of the firm and unexpected inflation. French, Ruback and Schwert (1983) study whether this negative relationship can be explained by nominal contracting, and conclude that it cannot be explained in these terms. Bernard (1986), on the other hand, finds that unexpected inflations affecting the value of the firm could partially be explained by nominal contracting, but also that proxies for the operational exposure to inflation partially could account for the inflation's negative impact on the value of the firm.

Geske and Roll (1983) explain this relationship from a theoretical standpoint. They claim that the value of the firm could be negatively related to positive changes in the rate of expansion of the monetary aggregates, which in turn depend on exogenous changes in real activity. Therefore, a negative change in real expected activity would lead to a lower value of the firm, and this would be correlated to an increase in interest rates.

Nevertheless, this effect is also small and neither inflation nor any correlation between the business cycle and the real interest rate seem to have a major impact on the firm's value. Lately, however, academics have paid much attention to other kinds of real financial linkage models: those in the currency markets.

6.2.3 Deviations from the purchasing power parity

The original version of PPP, often attributed to Cassel, states that the equilibrium exchange rate between domestic and foreign currencies equals the ratio between domestic and

³⁶ Of course, the causality could go the other way: real activity affecting real interest rate.

foreign price-levels.

$$e_{df} = \frac{P_{d,0t}}{P_{f,0t}} \quad (6.2)$$

where

$P_{d,0t}$: A price index for the domestic country with base-year 0 at time t ;

$P_{f,0t}$: A price index for the foreign country with base-year 0 at time t .

The relative version of the purchasing power parity states that the proportional changes in the ratio of domestic and foreign prices will equal proportionate changes in the equilibrium exchange rate between the domestic and the foreign currencies.

$$\frac{e_{df,t+1}}{e_{df,t}} = \frac{1+P_{d,t+1}}{1+P_{d,t}} * \frac{1+P_{f,t+1}}{1+P_{f,t}} \quad (6.3)$$

where

$P_{d,t}$: The domestic price index with base-year 0 at time t

$P_{f,t}$: The foreign price index with base-year 0 at the time t

For a more detailed description of these relationships, see e. g. Oxelheim (1987) appendix III.2. The condition for the PPP to hold has been stated in various ways by different authors. It is not my intention to review the extensive literature about PPP, but rather to highlight some of the problems associated with the concept, and some implications of deviations from the PPP.

Before discussing the different ways deviations from PPP can arise, the fundamental question of the indices to be used should be mentioned. The construction of a well-behaved national price index requires that all consumers in one currency area have homogeneous and homothetic utility functions³⁷

³⁷ See Adler and Dumas (1983), appendix 1 for a discussion.

Shapiro (1983) and Oxelheim (1987) stress that the index to be used is a function of which question that is asked. The relevant index in our context could either be that of the firm, if separation³⁸ holds, or that of the owners of the firm if separation does not hold.

There exist several possible reasons for PPP not to hold. Solnik (1978) states that PPP holds if (1) financial markets are perfect, (2) goods markets are perfect, and (3) there is a single consumption good common to everyone. Solnik brings forward several possible explanations for PPP not to hold:

a. The existence of a multi-good world. If inflation is measured in different ways in separate countries, i. e., different weights for the goods are used in order to calculate the price-levels in each country, then deviations from PPP would occur.

b. Goods market imperfection. If the goods market is non-perfect, i. e., prices do not adjust immediately to changes in the economic conditions, e. g., due to difficulties to adjust production or due to the prevailing market structure, then PPP does not necessarily hold.

The latter explanation is not accepted by Shapiro (1983), who has the following preconditions for PPP to hold. (1) perfect certainty, (2) uniform price-changes, (3) identical consumption preferences, (4) all goods tradeable, and finally, (5) no transaction costs or barriers to trade.

By definition, the financial and goods markets are in con-

³⁸ Separation is related to the notion of spanned financial markets discussed above in chapter 2. When markets are spanned any state contingent claim can be created, and financial decisions, can be separated from the owners of the firm, given some further assumptions.

stant equilibrium³⁹. Deviations from PPP are at least partly explained by the use of different indices when calculating consumer price index, CPI. A study by Kravis et. al. cited by Shapiro (p. 239), seem partially to explain the deviations from PPP with the different consumption indices used in different countries. The deviations were reduced when the same weights were used to calculate the PPP. Nevertheless, the deviations were observed, albeit smaller than before the corrections. Part of the remaining difference, according to Shapiro, can be explained by changes in relative prices within a country. The remaining deviations from PPP, are not large enough to be exploited by arbitragers, and hence, Shapiro claims, the markets are in equilibrium.

We nevertheless think that Shapiro's argumentation seems to neglect the fact that the law of one price apparently does not hold. For PPP to hold, the basic argument is that goods market arbitrage would change the good price level and/or the exchange rate until PPP holds. If this were not the case, the mechanisms to bring PPP back to its equilibrium level would not immediately work. Hence, we would get a situation where gradual adjustments in the goods market's prices force investors to overreact when pricing financial assets (Dornbusch, 1976).

As long as a perfect goods market exists, uncertainty, according to Solnik, cannot cause either the absolute version nor for the relative version of PPP to break down.

The source of deviations from PPP is important from the perspective of the decision maker in the firm. If these deviations result from imperfections in the goods market, which led to real exchange rate deviations, then the choice of currency becomes important to the firm. The importance of Shapiro's argument, also demonstrated in Cornell and Shapiro (1983), is that if the PPP deviations only results from

³⁹ Disequilibrium here is defined as the existence of a profitable arbitrage opportunity

difficulties of measuring consumer prices across countries when relative price changes within the countries, then PPP deviations are more of a firm-specific problem, than an exchange rate problem.

It should be noted that several different models for determining the exchange rates in an economy exist. It is not our purpose to review the literature; it should only be noted that, in our view, there exist at least five strands of models: (1) the traditional arbitrage relationships determining the prices of financial variables; (2) macroeconomic 'open economies' models, which take into account elasticities of trade and which takes the capital account as given; (3) the monetary approach where PPP is assumed to hold, and where money supply, interest rates and real income affect the exchange rate; (4) the portfolio balance approach, where the assets in different countries are imperfect substitutes - having different risk characteristics - and where the demand functions are derived for aggregates of national investors; and (5), a combination of portfolio balance theory and finance, where the demand functions are derived from: individual investors' utility functions, time and risk-preferences.

We will not review these theoretical approaches, but instead will mention the important distinction between models of exchange rate determination that assume that financial prices instantly mirror the situation in the good market and models that do not make this assumption. The latter models assume that either exchange rates or real interest rates deviate from the values predicted by the Fisherian relationships. Unless this is true, there is no need what so ever to consider financial risks, as financial decisions are irrelevant as long as prices paid in financial markets are made at market price⁴⁰. All risk originates from the real

⁴⁰ Only nominal contracts would be exposed to financial risk. Partial segmentation would create a situation according to hypothesis 4.

side of the economy.

There seem to be mounting evidence that deviations from PPP occurs. The question of whether exchange rates deviate from PPP-levels is difficult to study, as exchange rate changes could be induced by changing demand among consumers, patterns which are difficult to test empirically. Nevertheless, there seems to be growing disapproval of the traditional models in the wake of the large swings, especially in the USD/JPY- and USD/DEM-exchange rates.

Frankel in 1986, quoted in Frankel and Meese (1987, pp. 124-125) studied the purchasing power parity between the U.S.A. and the United Kingdom for the period between 1869 to 1984, and found a statistically significant tendency for the real exchange rate to regress to PPP in the material. The speed of the adjustment, according to his material, was 14 per cent a year. This tendency had not been picked up in earlier tests made by other researchers, a phenomenon Frankel and Meese attribute to low power of tests which are conducted on fairly short time series.

Besides segmentation and regulations which can always create distortions in financial prices, other explanations have been brought forward primarily to explain deviations from PPP. Examples include the 'peso-problem model', when trust is destroyed in a currency forcing a monetary authority to change the exchange rate, and the 'speculative bubbles model' (see Dornbusch (1982) for a short description) Other explanations brought forward are 'overshooting models': a slow adjustment of goods prices forces investors in financial assets to compensate themselves for an expected change in real prices, forcing down the price of foreign financial assets resulting in an 'overshooting' change in exchange rates. This model still has to endogenously explain why prices in the goods markets are sticky. Further work in this area has used the international industrial organization as an explanatory factor for slow adjustment to change in real

exchanges rates in the good market. This is also consistent with the observed increase of multinational industries active in more organized markets. Industries are becoming multi-domestic and even global, and they have to handle the effect of exchange rate changes on several markets. This could create a situation where their reaction to PPP-deviations are affected by the industry's structure and firms' international scope. In this work we hold the view that industrial organization affects the adjustment process of exchange rates in the wake of a shock in the economy. A brief review of the discussion in the area also some empirical studies will be treated.

6.2.3.1 Industrial organization

Industrial organization models try to describe competition in industries with different sets of competitors and/or suppliers. Several researchers have studied how industry structures affect the determination of exchange rates. Näslund (1983) uses standard industrial organization models to discuss the firm's reaction to a devaluation. Flood (1985) uses comparative static analysis, while Dornbusch (1987) uses game theory models of industrial organization. Recent attempts to model 'marking to market' pricing behaviour and subsequent empirical studies will also be discussed.

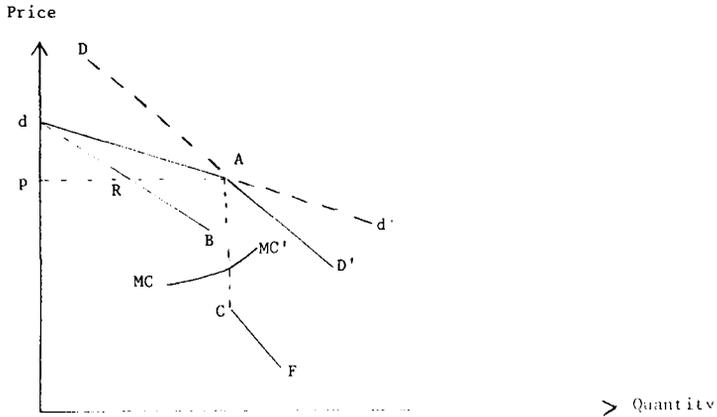
A. Single firm's reaction

Näslund (1983, p. 28-29) studies oligopolistic competition when the exchange rate changes. He describes the case graphically, see Fig. 6.1. The central problem with oligopolistic competition is that if a industry participant lowers its price, then all the firms will react by cutting their prices. A price increase, on the other hand, is less likely to lead to a reaction from competitors, and would decrease sales.

After a devaluation of a competitor's currency, and the ensuing cost advantage for the competitor in LC terms, it does not necessarily follow that the competitor will change

the LC prices.

Fig. 6.1 The oligopoly after a devaluation



Source: op cit, p. 28

Näslund conducts the analysis for a permanent shift in the real exchange rate. A decrease in price will decrease the size of the above economic rent earned by the industry. Consequently, for a segment below C, the firm would not consider lowering prices, even if the new firm marginal cost curve fell below C.

If a firm maximizes sales, as suggested by Baumol (1967) then another type of behaviour would accrue. Näslund in this case finds that after a devaluation a firm will keep the quantity exported constant, holding the LC-price constant. The HC price, on the other hand, will be increased with the size of the devaluation. (p. 32).

B. Comparative statistics with industrial organization

Flood's (1985) analysis takes a perfect market as its starting point, but uses different nations and currencies. Building on work by Kindleberger, Flood derives the effects of unexpected fluctuations in the exchange rate on the firm's

profit and output. The comparative static analysis does not consider uncertainty and it considers the change in the exchange rate to be permanent, not transitory. Having studied the perfect competition model, the author also analyses the same problem, now imposing (1) monopolistic competition or (2) price discrimination upon the market.

Perfect competition: in this setting, with a linear cost function, the supply curve of the domestic industry will shift downward when the domestic currency depreciates. The downward shift, for a given devaluation, will be an increasing function of the proportion of the supply originating in the domestic country. Furthermore, the downward shift will be an increasing function of the elasticity of supply for the domestic firms, as well as a decreasing function of the elasticity of supply of foreign firms.

Flood also shows that the demand curve will shift downward when there is a domestic currency devaluation. This downward shift is an increasing function of the elasticity of demand of the domestic consumers, and the proportion of demand originating in the domestic country. The final outcome of a devaluation with perfect competition depends upon the industry's size in both nations. Furthermore, after a change in the exchange rates the supply and demand elasticities will affect the outcome.

When the perfect competition assumption is dropped, further restrictive assumptions have to be made, and Flood assumes linear demand curves, and that all costs are all incurred domestically. The reaction of demand and supply will now depend first on the industry's ability to pass-on price changes to its customers, as well as on the price elasticity of the consumers. If the analysis is extended to several countries, the comparative statics would have to be even more restrictive, or they would yield no real predictions on what happened in the industry after an exchange rate change.

A more promising avenue to pursue seems to be the game theory approach to market interaction.

C. Dornbusch's game theory models

Dornbusch (1987) uses a game theory approach to analyze the problem of pass-through in industries with non-perfect competition. As Flood, Dornbusch also disregards cost exposure to exchange rate fluctuations when analyzing the impact of industry structure on the pass-through of exchange rate movements. Exposure on the cost side is reduced to the labour input, a domestic currency cost exposure, assuming that all other costs are equal for competitors, regardless of nationality.

When HC (home currency) appreciation reduces the foreign labour cost, market equilibrium is disturbed and a price and output adjustment will take place. Dornbusch identifies three factors that determine the impact of appreciation: (1) degree of market segmentation, (2) degree of substitution between domestic and foreign variants of a product and (3) market organization. Dornbusch then derives the adjustments for a Cournot type of market interaction, and for a Salop-production differentiation model.

In a Cournot market all firms maximize profits taking the sales of other firms as given. With foreign and domestic competitors in the model an analytical solution for the industry's price and quantity reactions are found. When the home currency, HC, appreciates, foreign firms increase their output while domestic firms contract theirs. Industry price declines; the elasticity of domestic prices to changes in the exchange rate is determined by two factors; the relative number of foreign firms and the ratio of marginal cost to the price charged by foreign firms. As both determinants turn out to be fractions, the HC appreciation will lower prices less than proportionally. The more competitive the industry, and the larger the share of imports to total sales, the steeper the decline in the HC price will be after an appreciation.

Dornbusch also presents some special cases. The one extreme is the small country and Dornbusch considers it as a limiting case. The author considers the small country case, characterized by a large number of foreign firms relative to the number of domestic firms, as a price taker. The other limiting case is considered to be an industry where exchange rate changes has no impact on domestic prices. There are few firms in the industry, and most of these are domestic. In this case, the foreign firms absorb the HC-appreciation primarily in the form of extra profits rather than through increased sales.

The export price will, of course, be affected by an HC-appreciation. As the marginal revenue decreases, exports from the country which has appreciated its currency will shrink. The HC-price of exports will decline, given that the foreign market is modelled in the same manner as the domestic market.

Dornbusch also modelled the changes in prices given Salop's model of competition. This model is often used to model the interaction in industries with monopolistic competition. Here consumers perceive the different producers' brands as slightly differentiated, and are reluctant to switch between products unless prices are decreased somewhat. This is modelled as brands being placed on a circle's perimeter where the distance between the brands symbolize the loss a consumer would perceive when he switches between his favorite brand to another. The ordering of the brands along the perimeter will therefore be of importance for the choice of the consumer.

No conclusive results will be obtainable when modelling this in an international context unless assumptions are made about the foreign and domestic brands' localization on the circle. Dornbusch assumes an even number of brands and that domestic and foreign brands alternate along the circle with equal distance. Producers are assumed to have constant unit costs and there are no fixed costs. Given these fairly strong

assumptions, analytical solutions of the exchange rate elasticities of prices, and export and import volumes are obtained. These elasticities show that the less firms there are in the industry the smaller the change in relative prices will be after a change in the exchange rate.

Dornbusch's models show how strategic interaction and not only the spatial configuration of industry affects the pass-through of an exchange rate change to customers. The same could be said to be true about Flood's analysis. A major disadvantage with these models are that they impose fairly strict assumptions to get closed form solutions. These assumptions, primarily the linearity of cost, are probably too restrictive for these models to be used on the firm level. But there is another feature with these models: they all assume that PPP deviations are permanent, basically reflecting a fundamental change in the exchange rates. The issue is therefore more geared to the pass-through of real exchange rate shifts, while we are more concerned with temporary deviations in the PPP, characteristically reflecting some real financial linkage, which the pass-through analysis not does, as it is a change in the fundamental value creating the change and which effects the import and export prices and volumes.

D. 'Pricing to market'

The cited industrial organization models are static: the firm can adjust to the change and the exchange rate in expectation remains at the new level. Consequently, the exchange rate adjustment is taken as permanent. When studying this problem in a dynamic context, with temporary exchange rate adjustments, Krugman (1988) developed the pricing to market concept. We will first study the empirical evidence brought forward for 'pricing to markets' and then discuss how the phenomenon can arise. The basic idea with pricing to market is that after an exchange rate shift, and contrary to the situation with incomplete pass-through, the firm will apply different prices to different markets.

Pricing to market - empirical evidence: Dornbusch (op cit) noted that price adjustments after an exchange rate shock differed across industry sectors. Krugman (op cit) empirically shows that West German exporters do not adjust their prices in the same manner over all sectors. The study was made for single-digit SITC export to two areas: the U.S.A. and the rest of the world, during the period from 1980-83. During this period the DEM fell with 29 per cent in nominal terms against the USD. The German price index of export of manufactured goods to the U.S.A. only decreased by approximately 1 per cent, while the prices for exports to the rest of the world fell by 14 per cent. When breaking the data down to different manufactured goods sectors, the data clearly shows that in SITC 7 - machinery and transport equipment - export prices to the U.S.A rose by 5 per cent, while prices decreased by 12 per cent for exports to the rest of the world. For the SITC 5 (chemicals and related products), SITC 6 (basic manufactures) and SITC 8 (miscellaneous manufactured goods), there were no dramatic differences. Krugman also found evidence of pricing to market when studying U.S. import statistics. He concludes that evidence exists of pricing to market, and that pricing to market is not an universal phenomenon (p. 55,56).

The normal supply and demand model could explain why the price of imports in the U.S.A. does not fall far enough to compensate for dollar appreciation, as the marginal cost is pushed up for the entire industry when U.S. demand, and therefore total world demand increases. It is essential to note that the large size of the U.S. market raises prices not only in the country whose currency is appreciated, but in all world markets. The pricing to market observation notes that prices outside the U.S. market do not adjust in order to compensate for this change. The simple supply and demand model cannot fully explain the phenomenon.

Knetter (1989) studied the same problem, but he used a

technique borrowed from industrial organization, to estimate the marginal cost of the industry. Consequently, he could test whether the incomplete pass-through resulted from increasing marginal cost as demand increased, or whether the observed price differences were the result of pricing to markets phenomena.

Knetter also tested how the pass-through was related to the marginal cost for six U.S. industries, with between six and ten export destinations. The results did not indicate any pricing to market behaviour for U.S. firms. The author also tested eight West German industries with export destinations ranging between four and eight countries. For these data Knetter found significant pricing to market behaviours which "appear to rule out the constant elasticity hypothesis for each product" (p. 207). The only conceivable explanation the author could arrive at for the pattern of pricing behaviour found in the data was that the U.S. market is large and competitive with large sources of alternative supplies within the economy - importers to this market are forced to stabilize their export price in USD. The U.S. exporter, on the other hand, does not encounter a similar situation when exporting and, is therefore less prone to stabilize prices in local currency terms.

Further evidence of pricing to market behaviour was provided by Schembri (1989), who studied the pricing behaviour of a Canadian industry supplying basically 90 per cent of its output in the U.S. and domestically. The author models the industry's pricing behaviour as if it behaved as a monopolist, setting prices to equate marginal revenue between markets and equal to marginal cost. By assuming that the production function has a specific form and by observing factor prices as well as output and prices charged, the mark-ups for the U.S. and Canadian markets were estimated, and these showed evidence of pricing to market behaviour over time.

Dornbusch's, Krugman's and Schembri's results indicate that the observed incomplete pass-through of the USD appreciation vis-a-vis its trading partners is partially explained by sectorial differences in pricing behaviour. Knetter, on the other hand, found that despite testing of the constant elasticity hypothesis on three digit level STIC data, the 'pricing to market' occurred for West German exports for good, even for products as standardized as potassium chloride. He attributed this to a more competitive environment in the U.S.A. Consequently, his study indicates that the incomplete pass-through is not caused by increasing marginal costs due to rising demand, but instead seems to be caused by a less than perfect competitive environment. This is important - the competitive environment causes a slower than expected pass-through of exchange rate deviations, which can change the behaviour of firms if they expect exchange rate changes to be temporary. Krugman (op cit) has modelled this behaviour.

Pricing to markets, modelled in the dynamic setting: the pricing to market concept, according to Krugman is best explained in a dynamic model of imperfect competition, where costs of increased supply, reputation and product differentiation considerations play a significant role. Krugman analyses the circumstances under which pricing to market occurs for three different industry structures: (1) perfect competition, (2) monopoly and (3) oligopoly. He concludes that these models cannot satisfactorily explain the pattern in price adjustments that he observed (pricing to market behaviour in the machinery and transport equipment industry, but not in other manufacturing industries).

Krugman further examines how an analysis of monopolistic competition can explain the observed patterns. According to the analysis, the predicted behaviour will totally depend upon the shape of the demand curve; specifically, the elasticity of demand must increase in the price (p. 60) in order for monopolists to 'price to the market', given

constant marginal costs denominated in the non-U.S. currency. The same analysis is conducted for a two-firm oligopoly, where one firm has its domicile in the U.S.A. and the other outside the U.S.A. Both types have constant marginal costs and competition is assumed to be of the Cournot type. Elasticity of demand is assumed to be constant. Krugman concludes that it is necessary to invoke some kind of friction for the U.S. firm to compete outside its home market, in order to attain pricing to market results within this setting. The result, consequently, is a product of two assumptions, perfect substitutability between the two firms' products and the assumption of Cournot competition.

Instead, Krugman introduces dynamic models as explanations for the pricing to market phenomenon. The static models, discussed above, take the stability of the exchange rate change for granted. Firms, therefore, act as if the change would continue for ever. If firms expected the deviation to be temporary, then they would not react in accordance with these static models. Instead, Krugman offers one supply side argument and two demand side arguments for the existence of pricing to markets, given temporary exchange rate deviations.

The supply-side argument is simple: a firm facing what is perceived as a temporary favorable exchange rate at almost peak capacity will not undertake any major capacity expanding investments. The result will depend on what kind of adjustment process firms expect.

Another possibility brought forward by Krugman is a lagging change in demand, but the modelling of the problem is not conclusive, since the outcome will depend on the functional form of the demand. By introducing reputation, which is not dependent on the functional form of the demand, Krugman can get a closed solution. The price reputation of a good, i. e., consumers expect the good to be priced within a certain range and expect this price to be kept for a longer period of time, is assumed to be important for the consumer when choosing

sales outlets. If the firm increases its price, the product will be priced out of its reputed level. This would explain why the firm would not pass a temporary increase in marginal cost - i. e., a depreciation of the local currency - onto the customers. The reason a firm would not always pass on a decrease in marginal cost to the customer would be similar. The firm only temporary will be able to lower the price, but would get a too low reputed price which it would later have to increase. The cost for doing so might be larger than the revenue earned by lowering the price. In order to be fully passed over to the customer, a fall in marginal cost must be below the short-run marginal revenue curve, otherwise an appreciation will result in a windfall profit for the exporter.

It is difficult to assess the strength of these models, but it appears fairly evident that some of the empirically observed pricing behaviours are not consistent with standard theory. Knetter's results, though, seem to contradict parts of Krugman's findings; Knetter observes pricing to market behaviour for several categories of manufactured goods when exporting to the U.S.A. but not the reverse situation, which could be expected if Krugman's model was correct.

From our perspective, pricing to market has two aspects; first, it would constitute one reason for us to observe 'sticky prices' and consequently PPP-deviations; secondly, pricing to market would be necessary to incorporate into firms' pricing behaviour for different markets, when measuring the firm's operative exposure to exchange rate exposure. We also can see that the models which incorporate industry structure into the analysis of firms' behaviour in the wake of an exchange rate shock, are often contingent on the shape of the demand function, whose functional form is difficult to determine by statistical analysis.

E. Discussion

It is clear that there exist several possible real-financial

linkages which might affect the firm's financial decisions. Linkages between real interest rates and the business cycle are possible, but some gains might accrue for the firms due to inflation and nominal contracts. These were deemed to be too small to be significant, however.

For large Swedish firms in particular the last of the discussed real-financial linkages are of interest. Sweden is a small open economy, and its large firms are quite international in their scope; some firms generate more than 90 per cent of their revenue from abroad. On the other hand, Swedish firms, as we discussed in Chapter 1, have started to develop production structures which are international. Consequently, large Swedish firms do not generally fit the 'exporting firm'-label, their scope is more international than firms in the general models, which seem to be modelled more on firms without an international production structure. This must have implications for the manner in which the firm's financial exposure should be measured.

The discussion of the different pass-through and 'pricing to market' models seem to assign two dimensions of an industry an important role when prices are set: the international scope, i.e. the spatial distribution of firms and the industry structure of the industry. Näslund has shown the importance of the industry structure for the firm's pricing decision in the wake of an exchange rate change. Traditional pass-through analysis has shown the importance of the international scope and Flood and Dornbusch have tried to integrate this with more complex models of industrial structure. We will try to construct our yardstick of the operative cash flows real financial exposure with this in mind. But we will try to incorporate the cost structure into it, given the international production structure of many firms.

Before discussing the construction of yardsticks, we will briefly state our view of what risk is relevant to measure. A

fundamental requirement for firms' financial decisions to become relevant is the existence of asymmetric information about how future states affect firms' results. We assume that firms' owners cannot assess these outcomes. Therefore, a fundamental requirement of 'capital asset pricing' models or 'arbitrage pricing theory' is not upheld; consequently, we cannot use measures based upon these concepts, something often suggested in the corporate finance literature. Instead, we argue that total risk measures should be used.

Aside from the information asymmetry problems, other reasons have been presented by Shapiro and Titman (1986), as to why the firm should consider total risk. They argue that even if the stock market was only interested in the 'systematic' risk of the firm, hedging the total risk would be of importance.

Shapiro and Titman argue, that unless the firm concentrates upon hedging the total risk, the firm's operative cash flow would be affected in a negative way.

First, the firm's management might endorse projects with higher risk than those that the firm's other stakeholders would endorse. This would be especially true in situations where bankruptcy became likely. Owners would then start to treat the equity as an option, and hence perceive increased riskiness as positive, as the higher volatility increase the likelihood of receiving a positive return.

Managers, on their side, also get their decisions distracted by riskiness. In situations of financial distress, managers are likely to continue operations for longer periods than are economically justifiable; otherwise they anyhow lose their jobs.

Further arguments are that managers will claim more in pay if they work in risky operations; managers cannot diversify the firm's specific risk of their incomes, unlike the shareholders. Competition for employees will force firms to

manage total risk.

A final argument brought forward by Shapiro and Titman is that a firm that is in financial distress will have problems to take advantage of tax credits and write-offs.

We also have to make some assumptions about what risk we consider to be financial and what risk is considered to be real. This distinction is important, as it implies the realm of financial issues that should be of concern to the financial officers and consequently their responsibility for protecting the firm against macroeconomic uncertainty.

We have discussed how real exchange rate changes might reflect changing productivity or changing international demand for the country's products. Such changes could be considered stable, and, in our opinion, firms should account for these possibilities when making their production location decisions, and if there are menu costs for serving a market, also when deciding what markets to serve. We think that, the financial officers might support the decision-makers with predictions about the future development of these fundamental values; but, in our opinion, the responsibility lies with the industrial side and the firm's beliefs about the long term fundamental exchange rates development are reflected in its spatial configuration.

The responsibility of the financial officer, in our opinion, lies not in finding the optimal product locations etc, but in handling the consequences of financial variables that get out of line with the fundamental relationships, i.e. the effects of non-fundamental PPP-deviations and deviations in the real interest rate across currencies. According to this view, the financial risk of non-fundamental shifts in financial parameters is handled by the financial department; fundamental shifts of financial variables are the concern of the operational side of the firm.

6.3 Measuring 'economic' exposure

Given this view, the economic exposure of firms can be measured in different ways, and we will now turn to how this can be done.

There is an alternative measure of exchange rate exposure. We have above seen that the analytical solutions have not yielded totally operative solutions - the models are too rudimentary, especially in the way the cost structure is modelled. Another method suggested in the literature is a statistical approach. We argue that the chosen measure must be consistent with the micro and macro foundations used. Statistical methods to measure the economic exposure argues that the correlation between profits, or market value of the firm and the unexpected deviations in the exchange rate is the appropriate measure. Adler and Dumas (1984) in their second measure of exchange rate exposure, make the assumption that the real exchange rate and the firm's value are moving according to a joint normal probability distribution. As a consequence, the standard multi-variate regression coefficient with firm value as dependent variable becomes the measure of exposure. Multi-factor models using financial variables as independent variables have been put forward by Oxelheim and Wihlborg (1987). A recent example of how to use statistical methods when analysing the exposure of a U.S. firm's only subsidiary has been demonstrated in Garner and Shapiro (1988).

The problem with this approach is that the microeconomic setting we use, is not reflected in the measure; we assume that there are different price reactions when real exchange rates change. For example, for a certain industry's structures we assume that export prices in HC-terms are lowered after an appreciation of the HC, but not after a depreciation. Statistical measures hitherto established would try to fit these reactions to one linear equation, thereby blurring the results. One could of course work with two

equations or dummies for positive and negative changes in the exchange rates, but this still leaves us with the problem of turbulence. When firms change their structure by acquisition, divestiture or merger the basis for a statistical analysis is altered. It might be problematic to measure the firm's exposure with statistical measures on an aggregated level, regardless of what kind of micro- or macroeconomic foundation is assumed. Therefore, it is arguable that the conceptual measurers are particularly valuable when the structure of the firm changes during the studied period. This is particularly true for our study, considering that we, as discussed in Chapter 1 above, have seen a change in the degree of internationalization of Swedish firms and that our study object, large Swedish firms, are also among those most likely to have conducted acquisitions in the recent past.

We will instead measure the firm's profitability by a conceptual approach, where we will use some simplifying assumptions about the firm's reaction to an unexpected exchange rate change while trying to establish in what manner such a change will trigger any changes in the firm's price reaction. But we will initially divide the problem into two separate problems: the measurement of nominal and non-nominal exposure, or with Lessard's (1980) terminology the contractual and non-contractual exposure (see Fig. 6.2 for a description).

Cash flows denominated in non-SEK currencies are called contractually exposed cash flows when the LC payment is contractually predetermined as to the date of payment and its size. The size of the foreign payment is predetermined (LC-volume), and the effects of exchange rate changes or the effect of interest rates on the value of the agreement, can be established fairly accurately.

Fig. 6.2 Contractual, Quasi-contractual and Non-Contractual Exposure

Type of Exposure:			
	Contractual	Quasi-Contractual	Non-Contractual
Time	_____		
	Volume and Price Contractually Determined	Either Volume or Price Contractually Determined	Neither Volume nor Price Contractually Determined

The type of contractual commitments determines the type of exposure. The most common exposure measure estimates the exposure of obligations and rights which are determined by their local currency value (both price and volume are predetermined). These are analytically the easiest to handle. This kind of exposure will be treated in section 6.4 below.

This type of exposure can be characterized as nominal, and it is the only type of exposure which would matter in a world without real-financial linkages.

Between contractual and non-contractual exposure there is what Lessard calls quasi-contractual exposure. The firm has either committed itself to purchase/sell at an established price without determining the volume, or vice-versa. We argue that although these contracts might be binding, the ability to change volume or price gives the committed party such leverage that major losses cannot be incurred by this kind of exposure, and we will treat this kind of exposure as non-contractual (or volume) exposure.

When cash-flows only are expected and neither the local price of the good sold nor the volume to be sold is contractually predetermined, then the firm, its competitors and customers might change their supply and demand in response to a real change in the exchange rates. Such changes might result in shifts in the volume of local cash flow to be converted into

the home currency. Consequently, when the home currency value of the firm's cash flow is calculated after the real exchange rate distortion, it is not only the conversion effect that has to be calculated, but also the volume effect, i.e. to what extent the local currency volume to be converted is affected by the exchange rate change.

Summing up, the home currency volume of future cash flows will be affected in two dimensions: the exchange rate between local and home currency and the changes in the local currency volume to be converted. This kind of exposure is dependent on the existence of some kind of real-financial linkage, which we will discuss in more detail when we construct our measure of non-contractual exposure. Nonetheless, the way in which the contractual exposure is to be measured will be determined.

6.4 Measuring the contractual exposure

The sensitivity of contractual cash flows will be calculated with the help of Kaufold and Smirlock's measure. This measure will address the sensitivity of the contractual cash flow. Adjustments will be made for those options purchased or written with the help of the option pricing theory⁴¹. Some remarks about contingent claims has to be made. Contingent claims, are assets where a variable can fluctuate or occur, and by contractual agreement, change the payment stream connected to the asset. Contingent claims include floating rate loans, loans with caps, option contracts, warrants etc.

6.4.1 Contingent claims

If there are significant amounts of such assets, they could create valuation problems as their contractual structure, unlike for 'fixed income securities'; is not predetermined. A

⁴¹ Currency options came into use in late part of the period, the reluctance to use currency options where said to be due to an asymmetric tax-treatment of gains and losses on options which was removed at the end of the period.

large literature has evolved around the valuation of these kind of assets; focusing on the valuation of options.

We apply the following rules when evaluating non-straight fixed interest rate loans;

1. In the domestic case a floating interest rate does not pose any problem. Floating interest rate loans denominated in the HC are presumed to be floating with a perfect 'fit' to inflation and hence are not exposed. For floating rate loans denominated in currencies other than the HC, the interest paid will vary and consequently the LC volume paid also varies.

2. As these changes are partially offset by a change in the LC/HC-exchange rate we must account for the changes in the interest rate for LC-denominated loans with floating interest rates. The result, in home currency terms, will be a dampened effect of a change in local interest rate.

3. If interest call options constitute major assets or liabilities they will be priced in accordance with Black's (1976) formula. Similarly, currency call options are priced with Garman and Kohlhagen's (1983) option pricing model. We will include this our calculations if we encounter significant amounts.

4. Before calculating the contractual exposure, swaps will be included in the books, in such a manner that the underlying loan is changed for the loan which is swapped, or if a synthetic swap was used, the payment streams of both swaps will be introduced into the calculations.

6.4.2 Exchange rate exposure

In order to measure the exchange rate exposure of contractually determined cash flows, we should establish a cash flow report for exchange positions. A currency book establishes the firm's obligations and rights to a specific amount of

currency at different time-periods. Our currency book will be established for obligations, rights and the resulting net. We will establish this for one year periods. Forward and futures contracts will be included as the obligation to purchase the local currency at the day they are to be delivered. The date of the future commitment or obligation should be entered for each currency, as well as for the currency against which the exchange rate is quoted. At the time of evaluation, the net position for each exchange rate should be estimated at the going spot market rate. This would be the net home currency exposure to fluctuations in the exchange rate, without considering expected future changes due to interest rate differentials.

6.4.3 Interest rate exposure

The interest rate exposure can be calculated for commitments/obligations for each currency by using a duration measure. The best measures of interest rate risk are measures that give the price elasticity of the financial obligation to changes in the interest rate. Such measures are called 'Duration'-measures and they basically break up the individual bond's payment stream over time and then evaluate each discrete payment, as if the payment was a zero-coupon bond being repaid at that particular time.

This is a fairly straightforward evaluation technique, but it requires some assumptions about the way the term structure of the interest rate will move in the future; i. e., the way the slope and the level will change in the future. This is a drawback, as the measure will only be exact for movements of the term structure which exactly replicates the assumed movement. According to Bierwag, Kaufman and Toews (1983) this should not be a major problem as the difference between the calculated elasticity and the real elasticity has not been too great.

Macaulay's duration measure⁴²:

$$D = \frac{\sum_{n=1}^m \frac{nC_n}{(1+i)^n} + \frac{mA_m}{(1+i)^m}}{\sum_{n=1}^M \frac{C_n}{(1+i)^n} + \frac{A_m}{(1+i)^m}} \quad (6.4)$$

where

C = coupon payment in period n
 A = principal payment at maturity (m)
 i = yield to maturity
 M = date of last payment

(Bierwag, Kaufman and Toews, 1983 p. 16)

Duration measures evaluates the price sensitivity of the bond to small changes in the interest rate:

$$\frac{dP}{P} = -Ddi \quad (6.5)$$

This measure also evaluates the weighted average time to maturity for the bond, but this is not intentionally so - it is the consequence of the assumption that the term structure is flat and will only move in parallel shifts⁴³.

The measure has two drawbacks: first, it is only exact for small changes in the interest rate, i. e., it must be recalculated after each change in the interest rate. Secondly, the measure uses time to maturity to weight the payments, and the duration therefore changes over time. These disadvantages are not significant for us, as we not are discussing portfolio composition issues, but are interested in the firm's exposure at discrete intervals.

⁴² A good description of the possibilities inherent in the use of duration measures is given in Bierwag (1987). Morris (1974 and 1976) has used duration measures to decide in what manner the firm optimally should structure its balance sheet. This has been within an all-domestic firm and without any reference to any real financial linkages.

⁴³ There is one fundamental implication of a flat term structure: that the market as such does not have any specific time preference for consumption.

We will use Macaulay's measure even if more complex models could be used. Alternative measures all make some kind of assumption about the future behaviour of the term structure of interest rates, and the assumptions behind Macaulay's measure seem to be the most straightforward, being based on the least biased assumptions about the normal curvature and behaviour of the term structure.

The problem with duration measures is that unless further assumptions are made, they can only be used in national markets .

6.4.4 A combined measure of interest and exchange rates' contractual exposure

Kaufold and Smirlock (1986) analyze the exposure of foreign currency denominated contractual cash flows, in order to develop a method to hedge these flows with domestic future contracts. We will here describe how the exposure of a series of foreign payments can be described as exposed, leaving the hedge method aside. The formula (6.6) below shows the value of a foreign payment to be made to the firm in the future:

$$V_{0,t} = e_0 \frac{C_t^f}{(1+r^f)^t} \quad (6.6)$$

where

- $V_{0,t}$: the value of the payment at time period 0;
- C_t^f : the foreign payment denoted in local currency;
- t : time of payment;
- r^f : the risk adjusted local currency interest rate;
- e_0 : the spot exchange rate.

This payment can be viewed as a zero-coupon bond denominated in the local currency. The value of this payment will depend upon the change in the exchange rate, e_0 , which occurs until the money is available, and follows any change in the interest rate, r^f , in the foreign country. The size of this change will depend upon the local interest rate at the time

of payment, the exchange rate, and consequently the covariance between these two.

The problem is basically describable as a duration problem, and making the same assumptions as those inherent in Macaulley's duration measure; we get:

$$\frac{dV_0}{V_0} = \frac{e_t - e_0}{e_0} - D \cdot \frac{r_t - r_0}{r_0} \quad (6.7)$$

where

$$D = \frac{1}{V_0} \cdot \sum_{t=1}^n \frac{C_t e^{-rt}}{(1+r)^t} \quad (6.8)$$

The per cent change in the value of the payment will depend on the duration - in this case, time of payment - and the correlation between the exchange rate and the local interest rate.

$$dr^f = f(de) \quad (6.9)$$

The absolute change in the value of the foreign payments, expressed in the firm's home currency, combining (6.7) and (6.9) and multiplying with V_0 :

$$dV_0 = V_0 \cdot de - V_0 \cdot D \cdot f(de), \quad (6.10a)$$

This gives us an absolute sensitivity of the cash flow to exchange rate changes, given that the term structure is flat and will remain so, and given that the historic variance between e_0 and r^f also remains constant for the studied period of time.

This measure can be used when nominal exposures are calculated, where the LC-amount is predetermined, but the measure has to be adjusted in two respects. Floating interest rates can not be measured in this way as the size of the LC-payment will vary with the interest rate, which is assumed to vary with an exchange rate change. Furthermore, as we have

assumed a linear return of an 'overshooting' exchange rate to its equilibrium value the exchange rate's path to equilibrium has to be integrated into the calculations. This can only be done for a specific change in the exchange rate. Therefore, the measure of sensitivity to a change in the exchange rate contract will be calculated for a specific exchange rate shock, given a linear return of the 'overshooting' exchange rate to its equilibrium value.

$$dV_0 \left|_{\Delta e} = V_0 \cdot \Delta e - V_0 D^f \left|_{\Delta i} f(\Delta e), \quad (6.10b)$$

dV_0 is only calculated for t (time index, discrete time {1,2,3,4,5}), corresponding to the 5 year horizon of the analysis) and the linear return of the exchange rates absolute deviation from PPP to the equilibrium value is modelled by, $\Delta e \cdot \Omega_t$. (Ω_t is a factor which takes the value (0.9,0.7,0.5,0.3,.0.1) and accounts for the exchange rates linear return to its equilibrium value when the exchange rate is the year's average exchange rate).

We consequently do not obtain the contractual agreements' elasticity of exchange rate changes. The expression 6.10b gives us the changes in contractual agreements' value measured under the assumptions made in Kaufold and Smirlock's measure and the additional assumptions made. The choice of time-horizon will be discussed below. In order to make the measure comparable over time we weight it with the value of debt. This constitutes the elasticity of the contractual exposure to changes in the exchange rate, given a direction and the size of the changes. This will be contrasted with the non-contractual exposures of the firm, which we now turn our attention to.

6.5 Measuring non-contractual exposure

We will first briefly discuss more established measures of what often is coined 'economic' exposure. We then discuss the construction of our yardstick, assumed financial relations;

in addition to the kind of behaviour we expect firms to have both in regard to their spatial configuration and their price reaction after a change in the exchange rate. We are not able to bridge the gap between micro and macro analysis. Instead we will use two simplifying concepts derived from our previous discussion and from Flood and Lessard's (1986) measure: a currency habitat either for the local market or the global market. In our case, determined by the industry's international scope. Furthermore, likely reaction functions of firms in different types of industries. As we have not bridged the micro-macro gap with an analytical solution, we coin the end product a 'yardstick', recognizing its limited scope.

6.5.1 Measuring 'economic' exposure

The analytical models of how industry affects the pass-through of changes in real exchange rate changes, were deemed to be too abstract to be operational on the firm level. Many authors have modelled the exposure of the firm with more conceptual models.

Conceptual approaches have been suggested by several authors. The two-sided nature of the problem, that cost as well as revenues being denominated to the local currency of markets with different degrees of internationalization and strategic interaction between actors. Cornell and Shapiro (1983), Lessard and Lightstone (1986) Flood and Lessard (1986), and Hekman (1988) have made contributions which are attributable to this school of thought.

Due to the complex nature of the problem, explicit modelling of new equilibrium values are avoided. Instead, the authors concentrate upon the interaction between the studied company and international competitors. All discuss the firm's exchange rate exposure within a context of interaction between competitors in both the input and the output market. The inclusion of strategic interactions in both markets has had the consequence that the models are less formalized. In

our opinion, Flood and Lessard (1986) have come furthest in operationalizing the calculation of exposure, and we will limit ourselves to discussing their approach.

Flood and Lessard divide a firm's financial exposure into two categories: conversion exposure and the competitive exposure. The conversion exposure constitutes the change of value when an amount denominated in a local currency is exchange into the home currency. This constitutes the changing value of foreign cash-flows when an exchange rate change occurs. (See discussion above.)

The competitive effect constitutes local cash-flow volumes changes caused by the exchange rate shift. This effect, as we have previously seen, depends upon the spatial structure of the industry, its generic industrial organization, and consumer and supplier price elasticities. Instead of trying, as Flood did (op cit), to model the pass-through of an exchange rate change into a complex economy, the authors introduce a simplifying concept: the currency habitat. The currency habitat is operationally defined as the currency in which the price of the good has been most stable⁴⁴. Consequently, the authors avoid the problem of analytically determining what exchange rate that is the most stable. Having determined the currency habitat, the authors seem to assume that the price will be kept constant when expressed in this exchange rate.

An exchange rate change would affect the profits of the firm. Flood and Lessard suggest that this effect should be calculated with the contribution margin as a basis. This probably indicates that the authors want fixed costs to remain constant, and this makes sense as long as production cost's exchange rate composition, either exactly matches

⁴⁴ The authors still offer the readers guidance as to what factors will influence the currency habitat of a good.

those of the revenues - ex ante as well as ex post⁴⁵ or that all production costs are denominated in the home currency, i. e. centralized production like to some extent, Japanese car manufacturers in their earlier days. Firms with more complex production structures should also monitor the effects the exchange rate change has upon its cost side.

We still recognize that this measure is too crude for our purposes, but it offers a bridge between analytical models and the firm level. The concept of a currency habitat is operational as it provides a way to avoid the painstaking and often inconclusive analysis of how firms and customers will react upon an exchange rate change: the concept becomes the link between micro- and macroeconomic analysis.

In this model, the authors only categorize firms along two dimensions: the geographical scope of markets (domestic and global), and the marginal pricing factor (producer's cost or consumer's demand) to determine the habitat of cost and price. The question of how industry structure influences the firm's action is left out.

Furthermore, the volume effect would depend not only on the currency habitat of the specific product, but also on the price elasticity of the buyers. Consequently, it is difficult to construct a model that includes the interaction between different markets, the reaction functions of the specific firm and its competitors, the elasticity of demand in the output market, and the elasticity of supply in factor markets.

The quantity impact will have to be calculated separately and Flood and Lessard choose to measure this with the contribution margin as a basis, i. e., the per centage change in the contribution margin results from the real currency rate change. The LC net margin will change with two factors, local

⁴⁵ Meaning that each country should have its own production, which would apply for certain industries e. g. hotel chains.

price charged and with volume sold. The LC gross margin will only change with the price charged for the good. HC net margin might change with alterations in the HC/LC- exchange rate, the LC price charged, and the volume sold. Flood and Lessard do not provide a reaction function for the firm when it faces a changing exchange rate.

6.5.2 Assumed financial relationships

As stated above, we have decided to model financial sensitivity in a world with sticky goods prices, PPP deviations ('overshooting') , constant real interest rates. We will describe the adjustment period and its functional form used to model the adjustment of an overshooting exchange rate.

An exchange rate deviating from the PPP-level is here considered to be a real exchange rate deviation. From the perspective of the firm, a real exchange rate change alters its competitive situation, possibly in both the factor and the goods market. Real exchange rate deviations can have two basically different causes: either a fundamental change has occurred in the economy, e.g., higher productivity compared to the country's main trading partners, a discovery of a major natural resource, or some technological breakthrough. Such events would presumably affect the countries' terms of trade and the equilibrium exchange rate levels.

Instead of fundamental changes, we will consider exchange rate deviations as resulting from inflationary/deflationary policies that, due to slow adjustments in the goods market, will create an overshooting of exchange rate with a slow adjustment to PPP levels in the financial market. The slow adjustment can result from many factors, but we will consider the cause to be firms pricing to the market.

The real interest rate will be assumed to be stable, in order to avoid modelling the relationship between inflation, real interest rates and exchange rates in an economy where prices

adjust slowly in the goods market.

In this environment, the exchange rate will slowly adjust to its PPP-level from levels that are either too high or too low. We will assume that this adjustment process will take five years and be linear. The time period is consistent with results reported in Frankel and Meese (1987, referred to above), and the longest period of PPP-deviation mentioned by Chew and Stern (1988, p. vi)⁴⁶.

We will use historic variance when calculating the interaction between the interest rate and the exchange rate⁴⁷. If Central Banks, as we have argued, can affect exchange rate in the medium term, the use of historic variance implies that they will maintain their policies in subsequent periods. We would therefore like to introduce the concept of policy risk. Given the behaviour of monetary authorities, we might create 'hedged' positions when calculating the exposure of the firm which in reality are only hedged as long as the monetary authorities behave in the expected manner. A change in policy would destroy the basis for the analysis and consequently create a possible loss or gain.

That a position to some extent remains unhedged might seem illogical, but is actually unavoidable. The motivation for

⁴⁶ Different forms of temporary deviations from PPP could of course be envisaged, but they are then built upon other assumptions about why the exchange rate deviates than the one used in our measure; speculative bubbles would create an increasing deviation followed by an immediate adjustment and other models would create other temporal characteristics of PPP-deviations.

⁴⁷ We are not arguing that the firm should use a portfolio approach (see e.g. Makin (1978)) for handling exchange rate risk. First, the approach has to be connected to the interest costs in the economy, which this kind of model not is, see instead Schilbread (1988) for this being included. The problem of the historic variance approach, in this context, is that it will include both temporary and fundamental changes.

holding wealth, i. e., taking a position, is to consume later in life. The consumption pattern will be dependent on the purchasing power of money which, in turn, will be related to total production, inflation, exchange rates and the time value of money. To create a perfect hedge for these variables is not possible: even in a complete market setting there will always be a residual total wealth risk. When hedging future consumption, the investor will consequently have to leave some contingencies unhedged.

In our context, two contingencies remain unforeseen, a change in real interest rate, i. e. a change in the time value of money, and a change in monetary authorities' behaviour. The consequences of trusting monetary authorities becomes apparent the day the authorities change their policies, e. g., the Swedish maxi devaluation of the SEK:s value against the trade weighted currency basket in 1982.

6.5.3 'Muddling through'

Before attacking the influence of industry and the international scope of the goods markets on the pricing decision after an overshooting real exchange rate deviation, we will briefly discuss in what manner the firm might change its operations after such an exchange rate change.

6.5.3.1 The production scope

In the case of an "overshooting" adjustment process, the firm's spatial-configuration is unlikely to shift. If the firm has the capacity to switch production between units, this will probably be done. Also, a shift between different suppliers etc. might be undertaken, but these are changes in the firm's peripheral activities, and the main strategy is likely to be a 'muddle through' approach. Consequently, we will not recalculate the optimal spatial production configuration after a real exchange rate change.

As a response to a favorable exchange rate deviation a capacity expansion is even less likely., In such a situation,

the firm would have to recoup the entire cost of the factory over a fairly short period of time. Such an investment would have an extremely short pay-off time, especially considering the lead time for the expansion and the successive deterioration of the competitiveness, as the exchange rate adjusts over time towards its equilibrium value.

6.5.3.2 The sourcing scope

While the real exchange rate cannot be controlled by a firm's management, the firm can adjust its localization of its production in accordance with the new set of production costs which will prevail after the exchange rate change⁴⁸. An adjustment after an "overshooting" deviation from PPP is likely to result in a less radical adjustment, than an adjustment after a fundamental, and, hence, "permanent" shift in the real exchange rate. This will depend on the following factors: nature of the relationship between the firm and its supplier, switching costs, long-term contract, the competitive situation in the supplying industry, and technical complexity. These factors affect the firm's ability to react quickly to a PPP-deviation. These issues will be discussed with the purchasing officers and we will determine from which suppliers the firm would switch from, given a short term exchange rate swing.

6.5.3.3 The market scope

Given that the 'overshooting' deviation from PPP is considered temporary, we assume that the firm will not establish any new sales subsidiaries, and will only react in those markets already being served. This implicitly assumes that the cost of building a market organization is too large to motivate to building up this organization just to profit

⁴⁸ Kogut and Kulatilaka (1988) argue that flexibility in production might be built into the spatial structure of the firm, in such a way that the firm gets an industrial hedge against real exchange rate deviation, and the authors further argue that firms will do so as long as the option value of the hedge exceeds the decreasing cost efficiency in production due to slack.

from a temporary exchange rate disequilibria.

6.5.3.4 The role of the fixed cost when adjusting to an unexpected PPP-deviation

A common theme when analyzing the firm's adjustment to a temporary deviation of the exchange rate has been the non-linearity of costs. A firm will be unwilling to increase its production capacity or to increase overhead costs as a response to a temporary shift in real exchange rates. consequently, fixed costs matter; the firm's main reaction to a temporary real exchange rate change will possibly be to change the price and to leave both production capacity and marketing channels unchanged.

A concluding remark: we have been able to limit the firm's reaction to a temporary exchange rate deviation to the price and consequently the volume decision of the firm by distinguishing between a real temporary and a real fundamental exchange rate deviation. The pricing decision, we argue, is influenced by the industrial organization within which the respective business units act, and also the industry's international dimension.

6.5.4 Integrating the international dimension into the industry structure

We above conclude that there are two fundamental dimensions to our problem: first, the degree of internationalization and second, the industry structure in the market(s) where the firm is active.

We classify the firms' degree of internationalization according to three categories: First, markets can be local; participants do not sell to foreign markets or all firms are exporters and do not face foreign competition. Furthermore, they do not face any foreign competition in their national market. Second, firms can be multi-domestic; firms being international but pricing in accordance to the needs of each national market it participate in depending upon the different markets industrial structure, i. e. 'pricing to

markets'. Finally, firms can be 'global' and treat all national markets as if they were one single market, prices set equally over all markets, but price reactions still being determined by the industrial organization of the global market⁴⁹.

The pricing decision of the firm will depend upon the industry structure the firm is active in. Industrial organization theory describes the firms behaviour in markets where strategic interaction between competitors exist. These models, in general have no international dimension, i.e. they are constructed for local firms. For multi-domestic markets, at least one of the competitors will now be foreign and the strategic interaction might be affected by this. Finally, for the global market, the entire set of competitors in the world will be the relevant set of firms and the global industry structure will be the relevant when determining the exchange rate exposure.

It should be noted that we do not address two problems that emerge. First, as noted by Näslund (1983), the use of a portfolio strategy based upon the so-called BCG-matrix or other portfolio strategies might affect the firm's pricing and volume decisions. We will not consider these problems for two interrelated reasons. Our study unit is the 'business unit' and at that level these problems are of less interest than at the top management level. Furthermore, to the extent that there are investment opportunities that the firm wants

⁴⁹ This is a fairly narrow definition of global firms. It has been argued, see Porter (1980, pp. 278-281), that several sources of global competitive advantage which basically range over most functional areas exist, but we argue that these advantages must result in a pricing of the product which is coordinated over all the markets the firm is active in, and where this coordination is determined by the global industry structure. In our context, the price will be uniform over different markets, but we could perceive situations, as those discussed by Hamel and Prahalad (1988, p. 5-39) where firms cross-subsidize operations between different markets. This aspect will not be included in our measure.

to pursue, it will be presumed that the firms can finance any viable new investment. This is also consistent with the increasingly active capital markets, which make the 'firm as an internal capital market'⁵⁰ less interesting. Consequently, we will consider firms which are able to finance all proposed activities and therefore, do not have to pursue a cash-flow based portfolio strategy. Thus, we do not need to consider the firms' portfolio strategy when modelling the firm's reaction functions to exchange rate changes.

Second, the aspect of multi-point competition will not be considered⁵¹. This problem is not associated with financial flows between business units, but rather results from industrial interrelation between business units, which we not include into our framework and therefore choose to disregard.

6.5.5 Industry structure and firms' reaction functions

In this section, we specify some reaction functions for some types of industrial organization. In order to measure the competitive effect, we have to decide on the behaviour of firms when a deviation from PPP occurs. Given the complexity of the matter, we will have to postulate a behaviour for each industry structure, when some fixed costs exist and volume contractions or extensions are costly to make. We will specify likely reaction functions for the following industry structures: (1) oligopoly; (2) process industry and price-leaders.

6.5.5.1 Monopolistic competition and oligopoly

We have in the case of oligopoly seen how the all-exporting

⁵⁰ Naturally, not treating this issue is consistent with our delimitations made in section 1.5.3 above.

⁵¹ Multi-point competition means that the firm meets the same competitor in several business areas. An example would be when Siemens meets General Electric in both the auto-electronics industry as well as in the nuclear technology field. It is theoretically possible that the firms would let their pricing decisions in one field be affected by the competitive situation in the other.

firm after a permanent depreciation of the HC exchange rate might keep its exporting price constant instead of lowering the LC-export price. In this way, the firm's margin would increase. The reason for the stickiness would be found in the risk of triggering a price war.

For a temporary depreciation in the HC exchange rate a lowering of the LC price is even less likely, the cost advantage will be transitory and the industry will end up at a lower level of income when the exchange rate is back at its equilibrium level. Therefore, in the wake of a real temporary PPP deviation, firms classified as members of an oligopoly will be considered as keeping their LC-prices. The situation after a temporary appreciation, the firm might want to increase its LC-price, in order to maintain its profit margins. Such a behaviour is only likely if this would trigger a general price increase among industry participants. We deem this to be likely in industries where the party whose HC-currency has appreciated is the price leader, see section 6.5.5.3 below. Otherwise, we will assume that the firms will accept lower margins during the period the exchange rate returns to its fundamental value, keeping LC-prices constant.

6.5.5.2 Process industry

We think that special rules will apply for industries, where manufacturing is made in continuous processes and the manufacturing cost has a large component of fixed cost. Regardless of industry structure, the decision rule will be to maximize sales. Näslund (1983, p. 32) analyzed the reactions of a sales maximizing firm, on the basis of Baumol's model of the firm. Firms acting according to this model of the firm, will keep LC-prices constant after a depreciation of HC. Its domestic price however will increase. The volume sold cannot change as the firm is already selling at peak capacity. Such industries will be assumed to keep LC prices constant in order to maintain maximum production.

6.5.5.3 Price leaders and price takers

In markets where one competitor has a large part of the market this firm often behaves as the price leader and sets the price at which all participants sell. Price takers will increase the sales volume until $MC=MR$. The price leader then sells the remaining volume demanded at this price. From an exposure perspective, we have two alternatives; the price leader is a local firm or the price leader is a non-local firm. In the first case, the non-local firm will have to adjust its price to the local firm, i.e., local price, is, by definition, kept constant. If the price-leader is a non-local firm the situation becomes somewhat more complex. A price leader maximizes profits given the demand and the supply curve of the price takers. The supply curve will depend upon the composition of the price taker, and in what manner the supply curve of the price takers is affected by the exchange rate change. We, therefore, in this situation, cannot decide what the expected behaviour of the local price is and will assume that the price will be kept stable in terms of the price leaders home currency, unless managers of the firm not tells us otherwise, i.e the price leaders home currency will be considered the price habitat and we will presume that the price leader will keep home currency price stable after a real exchange rate shift⁵². Price takers, on the other hand, will have to fix their own prices to those determined by the price leader. It is worth noting that as a consequence, purely local competitors will be influenced by a exchange rate outside the market they act in when they act on a market where the price taker is foreign.

⁵² Questioning firm management is in this context fairly straight forward, as the price leader actually himself determines the price.

Table 6.1 A priori expected behaviour with unexpected changes in exchange rate between HC and LC

Business areas industrial organization setting	Changing the LC-price when e (HC/LC) changes
• Monopolistic Competition	$e > 0$ keep LC price $e < 0$ keep LC price
• Price leader, not local • Others under the price umbrella	stable prices in terms of the price leaders home currency (currency habitat)
• Stable oligopoly	$e > 0$ keep LC price $e < 0$ "
• Process Industry	$e > 0$ decrease LC price $e < 0$ keep LC price ⁵³

6.5.6.1 Local market

We consider local markets as either a market where the firm is only competing with local competitors selling to local customers⁵⁴, or an industry concentrated to one country, both types having production costs with a large component of local content. A foreign firm might be the owner of such a company and the exchange rate exposure for this firm will be considered to be the value of the firm expressed in the home currency of the proprietor. As we are studying the effects of temporary changes in real exchange rates, we can estimate the effects by the changing value of the repatriated profits; At the end of the adjustment period the remaining profits will be worth what they were initially expected to be.

6.5.6.2 Multi-domestic competition

⁵³ If the firm is not operating at maximum capacity. In that case their will be no change in LC-price but an increase in the HC price.

⁵⁴It will further be assumed that the demand will be fairly independent of exchange rate fluctuations

The analysis will be conducted within the local market; the market decision will be taken in the local market. The relative change in the exchange rate will be used as a base variable. The analysis in the local market will be conducted in four steps:

1. Establish whether the firm is acting an global or multi-domestic market;
2. Determine the firm's industry structure and the firm' likely reaction function to a exchange rate change;
3. Determine the currency habitat of the local market;
4. Determine the effect of a price change in LC terms of an exchange rate deviation.

The issues are interrelated, but we will first have to establish whether the industry is a global industry or not. If the firm considers the industry structure as being multi-domestic, then we will consider each market separately.

6.5.6.3 Industry structures' reaction functions with global competition

The global firm faces competitors who coordinate their pricing activities over several markets, but do not necessarily maximize revenues from each market. These competitive patterns are complex but we will make a further assumption: that the pricing in a global market will depend upon the industry structure and the exchange rate between the global actors home countries. The key exchange rate will be the exchange rate between the global competitors, if these change, the prices in all markets might change, depending on what industry structure the global firm is working within. Other currencies will enter the analysis in the following way: if their value shifts, then the LC-price will also change in accordance to the 'global' price, possibly affecting the volume sold locally.

We now have two types of exchange rates to track: first, the local and second, the exchange rate between the main

competitor countries⁵⁵. When these exchange rates are determined, Table 6.1 above could be applied to the price reaction, but for the global industries currency habitat; changes in the global price, expressed in the currency habitat currency, consequently change the prices in all local markets.

6.5.7 The sensitivity of non-contractual cash flows

Once we have determined the industry structure and the degree of internationalization of the firm's market(s), we will have to calculate the exposure for the operational cash flows. This will require data of the firm's sales in different countries, a prognosis of future sales, and finally, an estimate of the sensitivity of the customers to price changes.

The calculation of the duration of operational flows will be accomplished in two steps. First, the local market's sensitivity to unexpected real exchange rate changes and to unexpected inflation will be estimated, given industry structure and the degree of internationalization of the markets.

Second, our adjusted 'Kaufold and Smirlock's measure' will be used in order to bring together the different local cash flows' sensitivity to the real exchange rate deviations into one measure. This enables us to compare the non-contractual exposure with the contractual exposure. The following

⁵⁵ For instance a manufacturer of luxury motorbikes might consider the USD/YEN-, USD/DEM- and DEM/YEN-exchange rates as the important exchange rates to analyze when deciding what will affect prices in local markets. Between these exchange rates a currency habitat has to be established and the global industry structure will determine in what way the firm reacts to changes in the currency habitat exchange rate. Nevertheless, BMW for example will still be exposed in SEK even if the currency habitat exchange rate is stable, as prices are kept constant in the currency habitat currency and therefore a fluctuation in the SEK/DEM-exchange rate will result in price changes in the Swedish market, possibly leading to changes in volumes sold and consequently in the volume of SEK to be converted into DEM.

function will be applied in the analysis:

Variables:

- t : Time index, discrete time, $\{1,2,3,4,5\}$, 5 year horizon of the analysis.
- I_t : Inflation at t .
- e : Exchange rate between local currency and home currency, defined as the number of home currency units one unit of the local currency buys. (yearly average)
- $E[\cdot]$: The expectation operator.
- CF_{1c} : Local net cash flow without deduction for reinvested money, but with depreciations carried back.
- $Q_{1c}(P, \tau, \phi)$: Local volume sold, a function of price, price sensitivity of demand and inflation sensitivity of sales.
- τ : Price sensitivity of demand, the change in volume sold with a per centage in the price.
- ϕ : Inflation sensitivity of demand: the change in the volume sold with a one percentage change in expected inflations
- Ω : A factor which takes the value $(0.9, 0.7, 0.5, 0.3, 0,1)$ and accounts for the exchange rate's five years linear return to the PPP level after the real exchange rate has overshoot.
- $P_{1c}(e_h, IO)$: Price reaction function, dependent on the currency habitat of the local market and on the industry organization on the relevant level: local or global.
- IO : The variable is a logical operator stating whether prices will change and if so in local or in home currency terms in case of a real exchange rate change.
- e_h : Currency habitat for the studied good in local market.
- LC : Local operational production cost and menu cost in cash flow terms. No depreciations are included; neither are proceeds from investments made after the occurrence of the

real exchange rate change.⁵⁶

The local cash flow will then be determined by (6.11)

$$CF_{lc} = Q_{lc} (P, \tau, \Phi) P(e_h, IO) - LC \quad (6.11)$$

The expected cash flows will therefore be:

$$E[CF_{lc}] = E[Q_{lc}] \cdot P(e_h, IO) - LC(E[Q_{lc}]), \quad (6.12)$$

What will happen when the firm in the local market face a unexpected change in the real exchange rate is depicted in (6.13).

$$\Delta CF_{lc} \Big|_{e_t} = E[CF_{lc}] - CF_{lc} \Big|_{e_t} \quad (6.13)$$

The conversion effect of a change in the exchange rate is determined in accordance with (6.14).

$$dQ(P_{lc,t}, \tau, \Phi) = E[Q_{lc}] \cdot dP/P \cdot \tau + E[Q_{lc}] \cdot dI/I \cdot \Phi, \quad (6.14)$$

The following variable shows the price reaction function, given that the exchange rate of the currency habitat, e_h , is changed:

$$P_{lc,t} = [(1 + \Omega_t de), IO] \quad (6.15)$$

The currency habitat is included in this local sensitivity measure and will take care of the competitive effect of a change in the real exchange rate and inflation.

Finally, the cash proceed, (6.13), will be discounted at the HC interest rate for the five years the exchange rate is assumed to revert linearly to its fundamental value.

⁵⁶ This is sensible, as the investment must not be undertaken if the exchange rate will make them unprofitable. Only investments made prior to exchange rate fluctuation are considered.

$$NCE_j = \sum_{i=1}^5 \frac{\text{delta } CF_{lc} | e_i}{(1+r)^i} \quad (6.16)$$

where e_i = exchange rate for a LC at i : year of the adjustment process.

j = the exchange rate for which the calculation is made

This provides us with the firms exchange rate exposure for an individual LC currency. As Smirlock and Kaufold's measure aims at transforming the financial risk into HC-risk we will have to do the same with the non-contractual exposure. We do that by summing (6.16) over all LC.

$$TNCE = \sum_{j=1}^J NCE_j \quad (6.17)$$

where $TNCE$ = total exposure given a change in HC real-exchange rate.

J = total number of LC the firm handles.

6.6 total financial risk

The final step will be to combine the currencies' exposure into one single measure. This will consist of two measures, (6.10b) and (6.17) and can only measure the firm's exposure to a change in the value of the HC. The sum of these two will be the residual risk left. This statistic and its two components will help us analyze whether the firm's financial activities increase or decrease the financial risk, given our assumptions about the functioning of the financial and good markets are correct.

The formulas for the firm's adoption to a real exchange rate deviation are not linear; reactions might depend upon the direction of changes in either the real exchange rate or in inflation. This problem has been handled by a spread sheet analysis; here the manufacturing structure can be connected to the output decisions that result from changes in the

exchange rate. A currency by currency analysis is conducted.

CHAPTER 7

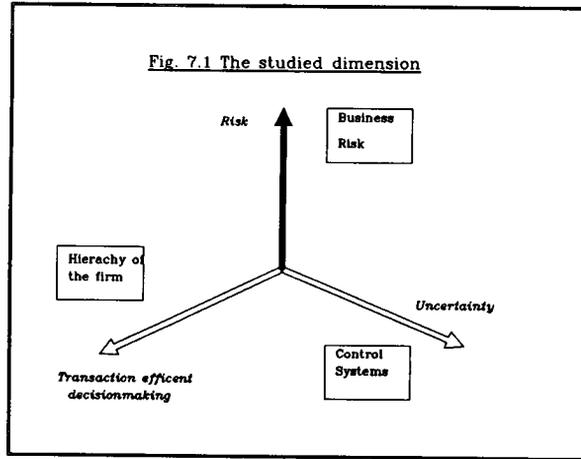
ESAB's financial and operational exposure

7.1 Introduction

In order to attain data about the development of an individual firm's financial exposure we applied the measure described in the previous chapter. The results of this as regards ESAB (Elektriska Svetsnings Aktiebolaget) will be reported here. The report contains information about the firm on the group level, but the calculations and information is gathered from both the firms top management (financial data) and from industrial managers. The design of the study and the manner data was gathered is discussed in this initial section. Some of the resulting analysis of the industrial activities is described in section 7.2. The following section, explains in more detail how the financial analysis was conducted. The results are reported and commented in section 7.4. The aim of the study is to see in what manner the firm has handled the 'risk' dimension of the firm (see Fig. 7.1), whether risk has increased or decreased over time.

We measured the development of total financial risk in ESAB for the period of 1980-1986. The study is an application of the yardstick described in the previous chapter, i.e. measuring financial risk according to a particular view of

financial risk, not necessarily the view of ESAB's treasury management⁵⁷



The study was conducted in two steps. First, the operational exposure was determined, followed by the financial exposure. These steps were conducted consecutively. We perceived the measurement of the firm's operational exposure as more judgmental than the financial exposure, the latter being largely contractual to its nature. Therefore, this study was postponed until the operational study was conducted.

A case study was written, using data from different sources: the firm's annual reports, published information about the firm and most importantly, from interviews with the firm's business area management and internal material. Much of the data used was provided by the officers interviewed, as much of the data needed is not published or otherwise available. Primarily, the business units' controllers and market

⁵⁷ As reported in chapter 5 above, ESAB to some extent uses a translation based exposure measure. the author's and management's exposure are therefore likely to differ.

managers were contacted. Follow-up interviews were occasionally made with the business unit's purchasing officers in order to attain more information about the cost structure of the firm. On three occasions the business unit's general manager participated instead of or complementary to the market manager, while the market managers of two divisions not were interviewed. At the German business unit the 'kaufmännische Leiter' was interviewed. Furthermore, an officer in charge of export activities of the firm was interviewed. The officers interviewed in this study are specified in Appendix 7.1.

An interview guideline was sent to the controller as well as to the market manager specifying the questions we wanted answers to, and a description of the research project is given. The guidelines are to be found in Appendix 7.2.-3.

After the interview, an interview memo was written and details and data were often checked on telephone. Occasionally, follow up interviews were made. Some data was also provided later by the interviewed officer.

In order to get a test of the reliability of the corporate managers' description of the competitive situation on the local market an interview was conducted with a market manager in a local subsidiary in West Germany. A questionnaire was sent to the local management and is included in Appendix 7.4.

The report was written and presented to the firm's treasury management for discussion, as a basis for the calculation of the operational exposure.

We gathered financial data from the ledgers of the firm as well as from the annual reports and internal material used when the annual reports were established. The data used will be described in section 7.4 where we also specify additional assumptions made when making the calculations. The final result was reviewed by the firm's treasury management.

7.2 The operational exposure

The study of the exposure is documented in its totality in a report presented to the firm's financial management. We will here only publish the first part of the report describing the firm's overall situation, its development over the studied period and the production structure of the firm. We will also look into the question of whether the firm is acting in a global industry in the sense discussed in chapter 6 above. For reasons of confidentiality the discussion of the different business areas will be withheld⁵⁸.

7.2.1 Introduction

ESAB is presently the world's largest company selling welding related products. It has reached this position through a strategy of purchasing the welding divisions of many of its European competitors. ESAB offers cutting machines, consumables for welding and welding machines - handheld, semiautomatic, and automatic.

As an introduction to the case, a short review of ESAB's history until 1980 is given. We go on to give a broad description of major events during the period 1980 to 1986.

7.2.2 ESAB's history until 1980

Oscar Kjellberg founded ESAB in 1904 as a company specializing in the repair of leaky boilers on ships. Experimentation with various welding techniques resulted in the development of the coated electrode. Coating the electrode prevents oxygen from mixing with the melted

⁵⁸ The sections withheld contain information about the cost structure of the firm, its business units' strategies as well as an assessment of competitors. The information has been made available to the thesis committee as well as the faculty's thesis opponent. This makes the replication of the study more difficult, but is a necessary step in order for us to be able to obtain the information in the first place. We will, in order to facilitate replication, indicate what kind of information that was used.

material, and the resulting welding joint is stronger than the joints produced with traditional arc welding.

Patents were already granted in 1906, but the method was not used extensively for shipbuilding purposes until it was accepted by the major classification societies 'Lloyd's Register of Shipping' and 'Det Norske Veritas'. These formal approvals were not granted until after the end of the war in 1919.

ESAB, nevertheless, started its internationalization earlier. See Appendix 7.5 for a description of the internationalization process. ESAB first established a subsidiary in Great Britain, Anglo-Swedish Electric Welding Co, Ltd. in 1912. Thereafter, the firm established operations in Belgium, 1914, and in Germany, 1921. By then, it widened the scope of the products it offered to welding machines and later to cutting machines. Further, in order to assure the proper application of its products, ESAB started to provide customers with training of its staff at in-house training centres.

Following these initial investments, the internationalization is best described in three periods. The first during the 30s and early 40s, when ESAB penetrated the Nordic countries and major shipbuilding nations. The second period started in early 50s, when ESAB left its European focus and made some overseas investments e. g. Brazil, Canada. Some of these overseas ventures seem to have been very successful.

In the early seventies, ESAB started to expand by acquisition. It went into the U.S.-market and also made its first investments in Asia, Africa and Australia. ESAB also started to increase its presence in the larger European markets, West Germany, Italy, Great Britain and Spain. In the beginning of the 70s, ESAB was a prime supplier of welding equipment to the shipbuilding industry. At the outset of the 80s three adverse trends faced ESAB's

management: (1) the structural change in the shipbuilding industry, (2) the decreasing world consumption of steel, and, finally, (3) a trend towards substitution of welding with coated electrodes with continuous electrode welding (MIG/MAG).

Before describing the events during 1980, we will briefly describe the effects these macro- and industry trends had on ESAB's strategic situation.

7.2.2.1 The structural change in the shipbuilding industry
The shipbuilding industry⁵⁹ was in the 30s, 40s and 50s primarily an European industry. 80-90% of world output was European with the U.K. as a dominant force. In the mid 50s a new force, see Appendix 7.6, emerged: Japan. Its share of world orders grew during the 60s and 70s, so that in 1980, 52% of new orders were given to Japanese shipyards, while only 23% were given to European shipyards. Some European shipyards survived with the help of state subsidies and by adding value to ships by building more specialized vessels.

From ESAB's point of view, the decrease in the number of ships built in Europe meant that the amount of electrodes needed to join steel plates to ship hulls in their main geographic market decreased rapidly. Also, the demand for large power sources and cutting machines, primarily used by the shipyards, decreased rapidly.

By 1914 ESAB had already a license to produce coated electrodes to Mitsubishi Zosen Kaisha Ltd, and the Japanese shipyards seem to have had good suppliers of electrodes domestically. An entry into the Japanese market has not to our knowledge been undertaken. ESAB, consequently, could not compensate the lost consumables volumes in Europe with sales in the new shipbuilding nations.

⁵⁹ This section draws partially on Dong and Porter (1986).

7.2.2.2 Decreasing steel consumption

The world consumption of steel has decreased. Thinner steel plates are being used, other materials e.g. composites replace steel and the trend towards smaller cars, are among the factors explaining the lower consumption of steel during the 70s and 80s. All of these trends have contributed to the decrease in the amount of welding consumables needed. This is a trend that ESAB has been aware of, and they foresaw early on an increasing overcapacity problem within the consumables industry. This trend was further enhanced by a third change in the market place.

7.2.2.3 The substitution of manual welding with coated electrodes to welding with continuous wire

The innovation inherent in Oskar Kjellberg's covered electrode consists of the coating of the electrode with a coat of chemicals. This coat will, when it is heated, gasify and protect the melting steel from the surrounding air, thereby decreasing the amount of oxidation within the welded joint. Today several alternative methods exist for welding. The MAG-(Metal Active Gas) and MIG-method (Metal Inert Gas), are increasingly used instead of welding with coated electrodes.

This has had two effects upon ESAB. First, continuous welding means that less of the electrode is wasted, and hence that the amount of electrodes, measured in tons demanded, decreases even further. Second, the wire used instead of the coated electrode is fairly easy to manufacture relative to a coated electrode, and therefore the value added in each ton of wire is lower than for the same amount of coated electrodes.

Consequently, the industry producing coated electrodes would need to be restructured. ESAB was one of the few European firms heavily committed to only the welding industry. This made the restructuring of the industry a pivotal point in its strategy for the eighties.

7.2.3. ESAB in the Period of 1980 to 1986 - Changing the welding industry

7.2.3.1 Introduction

In 1980 ESAB got a new CEO, Bengt Eskilsson, who undertook a major review of ESAB's strategy. The strategy reformulation started from a couple of observations. First, the trends mentioned above were recognized. Second, ESAB noted that many of the firms in the European welding business were less committed to the industry than ESAB. These firms were often large steel-, or gas manufacturers who had divisions which were active in the welding business.

Bengt Eskilsson brought the major consumable industry leaders together and asked them for their estimates of the future demand for welding consumables and then presented ESAB's and a major European consulting firm's own estimates. The estimates of the rest of the industry were distinctly more optimistic than those made by ESAB and the consultants.

This effort was made in order to convince firms with a low commitment to sell their divisions to ESAB, and thereby, in effect, letting ESAB head the restructuring of the European consumables industry. After the industry leaders pondered over this suggestion, and had seen that ESAB's and the consultant's estimates were almost on the mark, ESAB was more successful in buying market share.

ESAB followed a strategy of growth by acquisition within the European market and substantial acquisitions were made. The company consequently, changed the structure of the consumables industry and now faces competitors who seem to be fairly committed to the industry.

7.2.3.2 Major structural changes during the 1980s

1980: ESAB acquired 50% of the shares in ESAB Iberica S.A, an electrode manufacturer, a move which was intended to increase

its presence in Spain, one of Europe's major shipbuilding nations. ESAB Iberica S.A. was at that time the largest licensee of ESAB.

1981: ESAB acquired Various Fabrieken B.V. in the Netherlands which increased ESAB's market position in the Netherlands within the area of consumables. ESAB further acquired BOC's gas-cutting division, and merged it with ESAB-Kebe to ESAB-Hancock GmbH.

1982: ESAB had to acquire a further 25 per cent of ESAB Iberica S.A. ESAB also bought BOC's British gas-cutting division and renamed it ESAB-Hancock Cutting Machines.

The largest deal in 1982 was the purchase of Guest, Keen and Nettlewood's (GKN) welding division which had activities in Great Britain, Western Germany, France, Holland, Belgium and Switzerland. Thereby ESAB got the brands Arcos, Lincoln and Brinal.

1983: during this year ESAB increased its minority holding of Werner Eichholzer AG, Switzerland, to a majority holding.

ESAB further acquired BOC's welding division with the brands Murex and Saffire, renaming the division Murex Welding Products Ltd. BOC keeps its operations in the U.S.A, South Africa and Australia. Production is localized to Waltham Cross, Hertfordshire, England.

1984: ESAB acquires the remaining 49% of Autogenwerk Rhöna GmbH - which produces gas welding equipment. Armco's welding operations in Brazil are purchased, and a welding machine factory is established. "Mechanized Welding Centres" (MWC) are opened, one in Italy and two in the U.S.A.

The second cornerstone among ESAB's operative goals was to make production more cost efficient and rational. Consequently, ESAB closes factories in:

- Brazil -Armco's consumables operations are concentrated to Belo Horizonte.
- Sweden -a wire mill in Laxå.
- Finland -a wire factory in Helsinki
- Mexico - an electrode factory in Mexico.
- Great Britain - an electrode plant in Gillingham.
- Norway - an electrode establishment in Larvik.
- France - operations concentrated to Pontoise in France
- Italy - operations in Italy concentrated to Mesero

ESAB, in cooperation with Swedish IBM, started to develop a computer based network, COSMOS. The system allows for centralized production with a commitment of the factories to deliver to the ordering local market company within 48 hours after placing their order on the network.

The major effect of this system, in terms of reduced inventory materialized in 1987 when inventories decreased by MSEK 110. Previously, ESAB had problems in convincing some of the market companies to use the system. Therefore, we will not consider the effect of COSMOS on the firm's exposure. ESAB closed all acquired factories producing machines, except the Mexican and the Brazilian units.

1985: in 1984, ESAB signed a letter of intent to purchase Philip's European welding division. ESAB takes control of operations in March 1985 thereby adding a further MSEK 390 to sales. Philip's units were localized in Great Britain, France, the Netherlands, Spain and West Germany. These units were renamed Filarc. Electrode factories in Scotland and in the Netherlands were closed. Production previously sourced from a joint venture in France was routed to other factories.

By then, ESAB had become a major force in the consumables industry and the integration and rationalization of the acquired units while simultaneously strengthening the high-

tech business areas became the main strategic thrust of the company.

1986: The gas welding business, less than four per cent of ESAB's sales, is spun off to a joint venture with AGA, a major Swedish gas-company. The factories producing covered electrodes in Finland and Portugal are closed, and the units in France are further rationalized. The restructuring of ESAB's manufacturing structure was more or less concluded. Some minor changes in the structure were left - the closure of a minor operation in Uppsala, one in Great Britain and a further one in Kårberga, Sweden.

1987 and onwards: ESAB will try to build market share in those European countries where it perceives its share to be comparatively small.

The above description of the changing structure of ESAB is depicted graphically in Appendices 7.8-7.10. The sales of ESAB, as reported in the annual reports for the same period are depicted in Appendix 7.11.

7.2.3.3 ESAB's strategy after market penetration

After describing the route of ESAB's acquisition tour, a description of ESAB's stated strategy as it appeared in the annual report 1983 will be given. This has also been confirmed with internal documents and discussions with managers.

ESAB describes its present strategy as a strategy where it wants to obtain a market dominating position and operationally this means that ESAB wants to increase market penetration.

Simultaneously, ESAB wants to become less dependent upon products with low value added, primarily standard types of consumables, and more active in areas within the welding business where the products contain more value added. Such

areas are welding machines and sophisticated electrodes. It is a clear goal to increase the share of price insensitive products by increasing the technical know-how embedded in the products sold.

The rationale behind acquisitions made, was to buy market share, i. e. brands⁶⁰, keeping the image of the brand, and trying to become a low cost producer by rationalizing production, logistics and marketing. Instead of producing different electrodes, ESAB wanted to produce certain high value-added electrodes at one central factory, thereby reaping economies of scale. ESAB will nevertheless sell these electrodes under different brand names.

If ESAB follow the normal 'Electrolux'-strategy as regards their multi-brand policy, they will slowly drop some of the national brands.

The multiple brand policy is motivated by the belief that a takeover of a firm should be done in a manner that affects the customers' perception of the firm as little as possible. This being the only way to maintain the purchased market-share after the acquisition. An awareness of the overall firm identity is then discussed.⁶¹

During the studied period, ESAB acquired several factories, subsequently closing several of those acquired as well as some previously operated by ESAB. Furthermore, ESAB centralized production of certain electrodes and kept local production of others. This will be reported in more detail in

⁶⁰ ESAB firmly believes that consumables brands are like household brands, and that besides technical differences between brands an affection value is perceived by customers using a particular brand.

⁶¹ ESAB has now renamed itself to the 'ESAB Group' where the different brands are given a distinct profile vis-à-vis customers, but also increasing the presence of ESAB's name in the market.

section 4. Large efforts have been made in order to increase the volume of non-consumables business, and ESAB therefore made some acquisitions which increased its presence in these markets.

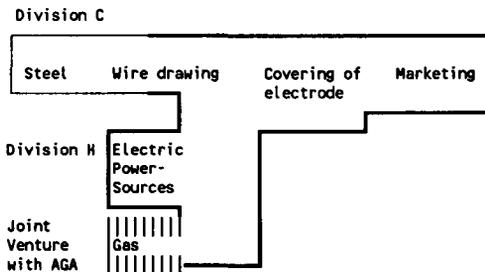
ESAB restated its strategy in their 1986 annual report. The firm's goals were stated as:

- "(1) growth in volume and market share in the main market which should be achieved through a powerful marketing. An active acquisition policy will support this strategy.
- (2) to enter markets with a future growth potential.
- (3) to be the technological and commercial leader in the future welding- and cutting industry
- (4) to further develop its existing products."

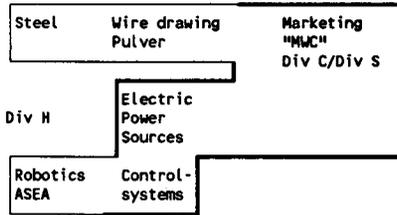
7.2.4 ESAB's value chain

It is clear from the description of the development during this decade that ESAB in a powerful manner has implemented the first parts of its strategy. We will analyze ESAB's strategy in value chain- and business portfolio terms in order to increase our understanding of ESAB's overall behaviour. We go on to study what global competitors ESAB might face. The analysis of each separate business unit will then follow.

Fig. 7.2 The value added with different welding methods
Manual Metal Arc (MMA)-/ gaswelding



MIG- (Metal In Gas), MAG- (Metal Active Gas), TIG- (Tungsten Inert Gas), UP- (Unter pulver) welding (Semi and Automatic Welding)



Div S

Legend:

- : Activities within ESAB
- : Activities sourced outside ESAB
- || : Joint Venture

7.2.4.1 Manual welding's value added chain

In order to understand ESAB's behaviour, strategically as well as operationally, an understanding of the dynamics in and between ESAB's value chains has to be attained. As regards the manual welding techniques, this chain constitutes a business in the later stages of the product life cycle. The total volumes demanded shrinks rapidly, at times between 7-10% a year and it is not clear when, if at all, the demand will plateau out to a stable level.

By centralizing production of electrodes with a relatively high value added at the same time as increasing efficiency of logistics with the help of COSMOS, ESAB hopes to decrease their costs further relative to their competitors.⁶²

This is the business area that will earn the cash-flows for future expansions and investments in other areas. It is

⁶². This is described in Harvard Business School Case (1987) # 0-188-005, "ESAB AB: Toughing it out". President and Fellows of Harvard College.

likely that the largest investments are made in this area and that the future strategy will be to reap as large profits as possible from the oligopolistic market for consumables. This will probably be done by keeping prices up while costs are decreased. As long as ESAB is the most cost efficient producer, they will be able to keep prices at levels that defend volumes.

7.2.4.2 Semi- and automatic welding's value added chain

ESAB seem to want to use some of the cash flow generated from the consumables industry to invest in the business areas where it can identify future growth opportunities; in the second value chain, the semi- and automatic welding techniques. This area is marked by the technical sophistication in the machinery and the control systems and the relatively simple technology embedded in some of the consumables.

Consequently, ESAB views this area as a future 'star'. Machinery, power sources, welding automates and robotics needed for semi- and automatic welding are considered to be the price insensitive segments where ESAB wants to be. The belief is that customers, perceiving a high degree of added value, will be prepared to pay a price premium for this equipment. A further factor influencing the profitability in the segment is that the industry has a different structure than the consumables industry. With fewer large competitors ESAB might be able to create a market-dominating position.

The industry lacks global competitors and ESAB has a competitive advantages in its large market network. It might therefore be able to reap economies of scale from its centralized production.

Consumables for continuous welding are today partially sourced from external suppliers and ESAB uses its marketing organization to sell these. Robotics are primarily purchased from ASEA Brown Boveri (ABB). ASEA is a major stakeholder in

ESAB as well as being one of the two owners of ABB. In a sense, ESAB could be said to be quasi-integrated into robotics through its linkage to ABB. Nevertheless, some robotics are purchased from external sources.

It could be argued that ESAB is deeply committed towards expansion in this product area, with staying power as long as the cash flows from the consumables operations suffice to support the expansion into this industry. The industry structure is fairly oligopolistic for products with a fairly mature technology while it is still industry in its formative stages when it comes to robotics.

7.2.4.3. Cutting division

ESAB until 1987 had a separate business area situated in West Germany and Great Britain manufacturing cutting machines. The cutting division is run from West Germany and in Europe it is seen as a European business.

7.2.5 ESAB's business portfolio

7.2.5.1 Product portfolio

ESAB is, in our view, not in one industry but in at least three: traditional welding, more sophisticated welding equipment and the cutting industry. ESAB seem to define its industry in accordance with its customers, i. e. anyone in the need of joining or bonding metal together or to cut it apart: "the welding industry". This defines ESAB activities from the last part of its value chains: marketing.

This market orientation is rational for ESAB. Our definition, however, takes competitors and their rivalry as the starting point - it is more interesting to localize those business areas with a distinct set of competitors. This could be done either by the value chains or by the different products. As the value chain in this particular case is too general, we choose product groups as the unit of analysis. But the cash flows between product areas can only be understood given the

value chain analysis in section 7.2.3.3.

We identify the following product areas:

<p>Simple Consumables Complicated Consumables Power stations Semi-automatic Welding Machines Automatic Welding Machines Cutting Machines</p>
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7.2.5.2 ESAB's portfolio strategy

We believe, in very general terms, that ESAB's portfolio strategy is to funnel cash from the simple consumables to the automatic welding-business area. The cutting machines, the semi-automatic Welding Machines and the complicated electrodes will be able to reinvest profits in their respective operations. This should have implications for the staying power of ESAB in the simple consumables and the automatic welding machines-business area.

7.2.6 ESAB's business area organization

At the beginning of the studied period, ESAB was organized in two divisions, consumables and machines. The consumables division was responsible for the development, manufacturing and sales of consumables needed for welding. The machine division was responsible for the development, manufacturing and marketing of machines and factory equipment. The unit in Rhöna -gas welding equipment-, the unit in Massing -welding robotics - and the unit in Karben -gas cutting equipment- were the embryos for what in the future would become separate divisions.

Consumables division

The division was divided into a division for handheld consumables and a division for automatic welding consumables. ESAB stopped reporting separate figures for these divisions in 1985 and since then has reported consumables as one division.

Machine division

In 1981, the machine units were divided into four divisions: the division for standard machines, the division for welding automation, the division for welding engineering, and a division for gas-cutting. In 1983, no figures were reported for Welding Engineering's activities. The division had become a sub-division within the consumables division and also handled licensees. Furthermore, the machine divisions were organized under one management, which was to coordinate the sub-division's activities.

Separate figures were reported in the same year for the gas activities within ESAB. This area had increased its significance, primarily due to the purchase of BOC's welding activities. Presumably these activities had been fairly small prior to this acquisition.

By 1986, the gas division was sold to Gas Control Equipment, a joint venture together with AGA, a major gas company. The joint venture is still consolidated with ESAB's group accounts.

In 1987, ESAB reorganized the machine divisions. The units handling computer controlled equipment, robotics, semi-automatic welding machines, gas- and laser-cutting equipment were joined into a new division called automation.

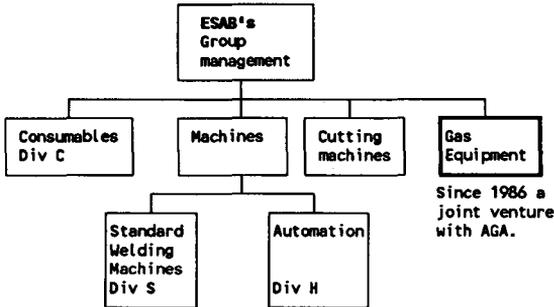
Export areas

After the large acquisitions 1984, export-activities were reorganized into export areas. These were formed for regions where ESAB did not have any controlling interest in local firms. These regions were:

- Export region Eastern Europe with management in Gothenburg, Sweden.
- Export region Far East with management in Sydney, Australia
- Export region Middle East, Africa and Latin America with

management in London, Great Britain.

Fig. 7.3 ESAB's business area organization in 1986



The division of the analysis in accordance with the business area organization of ESAB seems to be logical. When analyzing a firm's financial exposure the proper scope has to be chosen. ESAB has chosen a product scope for its business units.

ESAB faces a different set of competitors in each product area, and the firm seems to be concentrating on its European business. With this scope of analysis, multipoint competition arises but the decentralized business unit organization makes this less of a problem.

Group management is localized together with Division C at the headquarters at Hisingen in Gothenburg. Division S and H have their headquarters at Laxå, a small town situated between Stockholm and Gothenburg. Cutting machines' HQ is localized in Karben, south east of Frankfurt/Main, West Germany.

7.2.7 ESAB's global competitors

The consumables industry and the industry for welding machines are in our opinion not yet a global industry in the sense that the industry is dominated by large firms having a

significant presence in all important markets. ESAB, nevertheless, have met some large firms with a global presence. These firms are arguably still of minor importance to the competitive situation in ESAB's main competitive arena.

One competitor is Lincoln Electric, a large U.S. firm which has some sale in Europe. Kobe Steel's market share in Europe can be studied. Although the firm is fairly large it has not yet gained large market share in Europe. Appendix 7.7 shows the largest competitors in Western Europe. It should also be noted that ESAB's sales to a large extent originate from Europe. In 1985, 77 per cent of its sales were generated in Europe. The sales outside Europe are to a large extent accounted for by Brazil and sales of arc-welding robotics in the U.S.

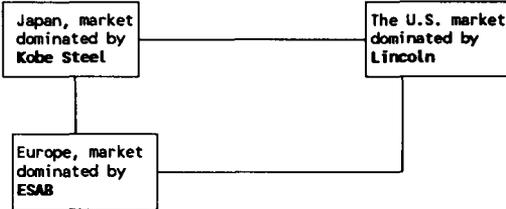
In 1986, the world market for welding products, consumables, welding and cutting machines was estimated to be approximately MSEK 80 thousand whereof Europe accounts for approximately 16 percent. This implies that we have a situation which in a "triad" context gives a constellation of companies according to Fig. 7.4

It is clear that the links between the markets in terms of goods sold in markets sourced from firms active in other markets are weak. It has not been established whether this is due to a "mutual hostage"-situation or natural barriers such as technical differences between markets or, alternatively, to too high transportation costs relative to the value added. We will in the following analysis consider Lincoln and Kobe Steel as normal competitors which are treated like any other competitor. They are the largest competitors, with Kobe selling for approximately MSEK 2000 on and Lincoln having a total turnover approximately SEK 3000 (1986 figures).

The industry structure is basically multidomestic, with regional competition and some strong local actors. Some of

the products are restricted to small regions - a country or a smaller group of countries - due to the low value added in relation to the transport costs.

Fig. 7.4 The global welding industry arena



7.2.8 Summary of general analysis

ESAB has progressed from being a primarily North European company to its current position as the largest producer of welding related products. It offers a broad range of products and operates in at least three industries, where value chains are used to define industries. ESAB has through some major acquisitions, bought market share in several countries and has in Europe become a very strong actor.

ESAB faces no large global competitor whose pricing and market decisions seem to be made on a worldwide basis. Two regional welding companies do exist. Lincoln Electric, a U.S. based firm, and Kobe Steel, a Japanese firm. We do not regard it as likely that these firms will transform the industry into a global industry before 1991.

In the value chain of manually controlled welding, the decline in total volume expected to continue. ESAB has bought market share and will try to reap local scale economies by keeping several brands but centralizing production. The market structure is predominantly local or, when the product can be transported on longer hauls due to higher value added embedded in the product, the market can be multi-domestic.

The market for semi- or automatic welding products is seen as a future growth market. ESAB wants to increase its market shares in order to reap scale economies in production and distribution. Welding robotics seem to be an emerging industry where the ultimate players still have to be identified. Given ESAB's commitment to the welding industry it is likely that they will want to attain large market shares in this field.

Due to scope economies in distribution, the cutting division fits into ESAB's general structure as a related company. Cutting sells to the same kind of clients as the rest of ESAB, but is somewhat peripheral to the core business. We therefore conclude that it will be less likely to lose money in order to uphold volumes.

ESAB has a product oriented business organization, which in 1986 consisted of five units. One for consumables, one for standard welding machines, one for automatic welding and welding robotics, one for cutting machines and a joint venture with gas-related welding equipment.

7.3 The financial exposure

The financial position of the firm has been determined with the help of data provided from the treasury department. The data has been given for the entire group, i.e. it has mainly been provided from the material used when compiling the Group's balance sheet. For two years (1985 and 1986) we collected the individual companies' reports of their balance sheet structure. A summary of the most important written sources used when compiling the report is given in Appendix 7.12.

This data gave us information about the regular loans taken by the different companies, and their amortization. For one year, 1980, this specification was missing, but the parent

company's financial structure of the loans can be deduced by using the values from 1979 and 1981 as well as a list of changes in the financial dispositions made during 1981, both provided by the firm. This was not the case for the subsidiaries.

Furthermore, information was provided about the checking accounts of various entities, but these were not included as they mainly finance working capital, which will only be rolled over by the firm and are therefore considered not to be affected if the firm encounters a temporary changes in exchange rate.

We were also given information about the size of bonds outstanding as well as placements made by the firm. We were, moreover, given information about the swaps outstanding, an activity started up only in 1985. No options were encountered. We were also given information about the size of outstanding hedging contracts was also obtained. We have calculated the correlation between changes in domestic interest rates and changes in the SEK/LC, for the period of 1973-1979, on annual basis. These correlations were used when we calculated the interest rates after the exchange rate shift.

This data was brought into a spread-sheet program, and analyzed according to the procedures described in the previous chapter. It has been necessary to impose some further assumptions during the work.

We have calculated the financial exposure for 1979, 1983 and 1986. During the latter year ESAB issues marketable securities and had entered into swap transactions. During an interview with the Treasurer, the swaps outstanding at the end of 1985 and 1986 were specified. Forward contracts connected to these has been considered and for trade related flows when of longer duration than a year. 'Currency cocktail'-loans have gotten their payments streams distributed

to the two largest currencies according to the weights used by the lending bank, (Nibleaus, 1983). A similar method has been used for distributing ECU denominated loans or swaps, when we established the currency book. (Data from Schilbread, 1988).

We have considered the effects upon the cash-flow from changes in the interest rates and for floating foreign loans, before translating the foreign cash-flows into SEK.

We have used the correlationkoefficient between the annual interest rate changes measured in per cent in the specific country and the percentage change in its exchange rate vis-á-vis the Swedish krona. The data was taken from International Financial Statitisc, 1973-1979, end-of year figures of average interest rates and average exchange rates. We used market series when available and for interest rates used primarily the yield of government bonds⁶³. For exchange rate changes in SEK we used the MERM-effeictive exchange rate series. The same set of data was used when we calculated the expected exchange rates for the period of 1987-1991. These exchange rates were calculated as if the international Fisher parity relation holds.

7.4 The total exposure

ESAB's treasury management has been provided with the financial data, on a currency by currency basis, but here we have aggregated the data for a depreciationa and a appreciation of the SEK value, across the board, by 7 per cent. These figures have been weighthd with the SEK value of financial streams from loans and placements during the following five years after the exchange rate shock. The exchange rate was supposed to adjust linearly to its equilibrium value after the shock, as indicated above.

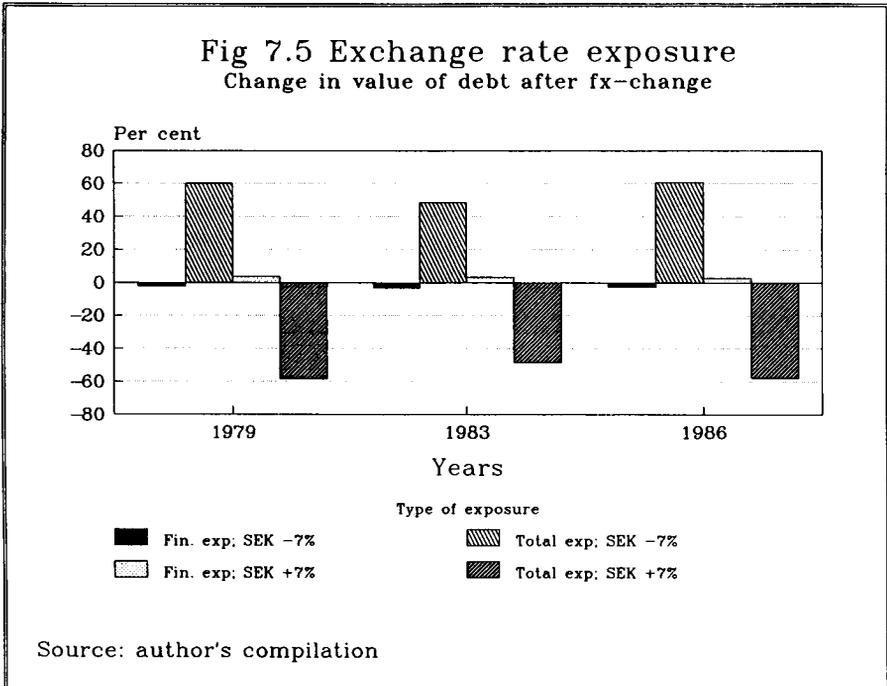
⁶³ For some countries were interest rates not are measured we used changes in the inflation rate as proxy for interest rates.

Two types of figures are given, one where the financial exposure is stated, and one where the operational exposure is added to the financial exposure. The latter shows the total financial exposure, and the first constitutes the duration measure of the financial assets and liabilities, adjusted for the effects of floating interest rates loans, given the seven percent change in the value of the SEK, see Fig. 7.5.

It is quite clear that the operational exposure dominates over the financial exposure. We note that the change in financial practices of the firm, reported in the chapter above, do not seem to have changed its financial risk, as we have measured it. Instead they seem motivated by cost efficiency in funding. No significant changes in the duration of the portfolio have been observed. It should also be noted that our measure of the financial risk underestimates the size of the financial risk, in comparison with accounting measures of exchange risk. Our measure only considers the changes - the flow exposure, while accounting measures consider the stock exposure, without considering whether exchange rate changes are permanent or temporary deviations from PPP. If such measures are applied, the size of the financial exposure becomes considerably larger. As we reported above, ESAB uses 'translation exposure' as a part of its risk calculations.

A remark on the reliability and internal validity of the case ought to be made. The compilations and estimations inherent in the report will certainly not be flawless, but in our opinion they constitute a fairly good picture of the firm's exposure. We have obtained detailed information about the firm, its strategy, its competitors, cost structures and the development of the firm in general. Data has in accordance with Yin's suggestions been collected from several sources: interviews, internal material as business reporting or strategic plans as well as externally published and audited publications. Furthermore, some external published articles and cases have been collected. Given the multiplicity of

independent sources we are inclined to assess the internal validity of the case as sufficiently high for us to draw conclusions from this case.



A further indication of the internal validity is given by the control interview with one of the subsidiary market managers. The responses of the market manager for ESAB GmbH indicate a good correlation between the view of the general manager of sub-division Standard machines and the German market manager. The head of the sub-division mentioned four out of six competitors mentioned by German market manager. The market manager of 'division Consumables' mentioned three out of the four competitors the German market manager considered to be the 'worst' competitors, but also included one which the German manager did not consider significant. All in all,

these results indicate a rather good correspondence with the central units' market perception and the perception of local management⁶⁴.

As to the validity of our measure it can only be noted, besides the description given above, that the interviews and with the managers and the material provided did not falsify the notion of multi-domestic competition with different price levels across national markets. This can as well be explained by different costs of distribution in different markets or with different demand elasticities to changes in price across countries. As a good picture of the price sensitivity across markets has not been attained, we do not want to make any statements as to why multi-domestic competition seem to prevail in some of ESAB's industry segments. Moreover, some of the assumptions of a 'muddle through strategy' have been observed during the interviews and in the written material. The measure, which hinges upon such a behaviour does not, therefore, seem to be invalidated by our observations in this specific case.

⁶⁴ We did not interview any representative of 'sub-division Automations' market company in West Germany.



Part C

In this part, we describe the financial intermediation activities of large privately-owned large non-corporative Swedish manufacturing firms at the end of 1986. (part of Research Question I). The organization of the firm's treasury units and the division of labour between the treasury units and the industrial units are discussed. In this context, financial policy in terms of in what markets firms tend to refinance themselves is discussed. We will also examine whether there are any differences in this respect between firms with more specialized treasury vehicles and those with a more simple organization.

Furthermore, we will also study the way the financial activities are organized in large Swedish firms at the end of the period studied.

Finally, we have studied hypotheses H1-H3/H4, in order to find explanations for why manufacturing-linked financial intermediation occurs.



CHAPTER 8

The Financial Activities and Organization of Swedish Manufacturing Firms

8.1 Introduction⁶⁵

In this chapter we report the results from a survey mailed to the fifty largest private, non-corporative Swedish manufacturing transport and construction firms. The survey was directed to the treasury departments of these firms. Some data was also collected from publicly available information to complement the findings made in the survey. The chapter is structured in the following manner: first, the purpose, design of the survey and the set of firms involved in the survey will be discussed, after which the survey collection process and the non-response will be discussed. Following this, the results will be presented, Interwoven with these results, some publicly available data is presented. The sources of this information are described in section 8.3.4. The results about the treasury's organization, division of responsibility and spatial structure are stated in section 8.4.1-8.4.3. as well as the funding approach and instruments used by the firms. In section 8.4.4, we describe our findings on the lending and leasing activities of the firms after having treated some of the possible explanations as to why manufacturing firms might have an advantage when conducting lending and leasing activities. The chapter is concluded with

⁶⁵ We want to thank Sten Wikander and various colleagues at Institute of International Business for the help with reviewing the draft of the questionnaire. The responsibility for any errors remains with the author.

a short comment, but the main results are presented together with the analysis of the results in the two previous parts

8.2 Aim of the survey

In this chapter, we describe the financial intermediation activities of privately owned large non-corporative Swedish manufacturing firms at the end of 1987 (part of Research Question I). Furthermore, we study some aspects of how the the financial activities were organized in large Swedish firms at the end of the studied period. We also want to test the hypotheses H1-H3, as a part of finding explanations for why financial intermediation occurs. The hypotheses were discussed in chapter 4, but will be recapitulated for the convenience of the reader: H1 states that the large firms lend money to other smaller firms active in industries of which the lender has specific industry knowledge, based upon this superior knowledge; H2 states the use of computer capacity from other parts of the firm than the financial department constitutes a major competitive advantage for manufacturing firms vis-à-vis the banking sector; H3/H4 states that the firms might conduct arbitrage and trading on the basis of segmentation induced by regulation.

We also asked some questions in the survey which are aimed at obtaining evidence supporting the directions about the interest rate risk-bearing characteristic of the firm's lending portfolios.

8.3 The design

We sent out the survey to a small set of Swedish firms, and tried to construct a survey which fitted large Swedish firms. We discuss here the set of firms, the construction of the questionnaire, and the process of collecting the answers, The pattern of responses/non-responses is analysed and the complementary data we used for the descriptive parts of this chapter are described.

8.3.1 The set of firms

The set consists of the fifty largest Swedish manufacturing transport and construction firms with group headquarters in Sweden ranked according to their 1987 turnover by "Veckans Affärer"⁶⁶, a major Swedish business weekly. Firms were to have group headquarters in Sweden and be the top company of the group to be included, see Appendix 8.1 for a list of the firms in our set. The reason for including these firms is that we want legal conditions to be roughly the same for the firms studied, therefore excluding cooperative firms, and firms not owned by a Swedish firm. We also excluded the retail industry from our set as they were perceived as having different economies than the manufacturing firms, after an interview with a large retailing firm conducted in early 1987.

One firm was included as it could be considered the finance arm of a larger firm, due to a combined majority holding by the firm and a firm linked to the holding firm. This firm refused to cooperate and the firm was excluded from the sample. Another firm, acquired a large retailer at the beginning of 1988 and no longer considered itself to be a manufacturing firm. It, too, was excluded from the survey.

The survey was sent to the CFO:s or treasurers of the firms, identified after contacts with the firms' PR-departments. Telephone calls were made in order to increase the response rate. During these calls, two surveys were answered with the author filling in the survey, the rest of the surveys were returned by mail. Answers to the surveys were complemented by data from annual reports and telephone interviews. This data concerns the total turnover of the finance arms and their country of residence.

⁶⁶ Veckans affärer nr 18/19, 5 of May 1988.

8.3.2 The design

When constructing a survey, a balance has to be struck between the depth of the questions to be answered and the likely willingness to answer the questions of the responding person. Furthermore, the total workload the survey constitutes has to be considered in order to avoid an unnecessarily high number of non-reponses, especially considering that we sent the surveys to the top management of large firms.

A first draft of the survey was therefore reviewed first by academics, then by a former CFO of one of the largest Swedish firms.

On the basis of their comments, the survey was shortened and divided into three parts, thereby enabling the CFO to delegate parts of the workload to others. The number of questions was kept at an absolute minimum and the workload was kept down as much as possible by avoiding too detailed questions which would require the respondent to check up on records, etc.

In order to increase the response rates, feedback on the results of the survey was promised to the respondents. The survey was printed and sent as three small booklets, together with a separate leaf with definitions of words used in the survey⁶⁷. The survey was sent together with a covering letter, where the research project was described. The first and most extensive booklet was to be filled out by the CFO or the treasurer, the second by the person in charge of the firm's lending activities and the third one by the person in charge of the firm's leasing operations. The survey, list of definitions and the covering letter are found in Appendix

⁶⁷ This was deemed necessary as terminology often becomes blurred and phrases might mean very different things to different actors. Furthermore, some terms are of a character that need an operationalization, i.e. arbitrage and position taking.

8.2. We will discuss the structure of each in the following three subsections.

8.3.2.1 Part 1 - organization and general policy

The first part deals with:

- A. The overall organization of the firm and activities performed by the firm's different units;
- B. Some questions as to what financial instruments are used to create the firm's financial positions, and what kind of arbitrage and trading activities the firm engages itself in.

The first part was to be answered by the chief financial officer (CFO) of the firm.

A. Organization

The first question in this part of the survey gives the CFO seven different organizational charts to choose among, where the one closest to the firm's organization is to be selected. Basically, three entities were varied, treasury department, internal bank, and finance company. They were combined into organizational charts, where the respondent had to mark the organizational chart most resembling the firm's treasury organization, at the end of 1986. If the organizational chart contained a finance company, the name of the company, the date of incorporation, and total assets were to be included in the chart. Furthermore, the prime activity of the company was to be stated in an open-ended question.

Following this, the responsibility, if applicable, for 23 different financial activities was to be distributed among the firm's different units, financial and non-financial. In this way, we are informed about what activities that are carried out and by what unit.

B. Funding and instruments

The next part concerns the structure of the firm's financing, the liquidity and standby lines of credit, instruments and

arbitrage and position-taking activities of the firm. We also inquire what instruments the firm is using.

C. Arbitrage and trading

We imposed a fairly strict definition of arbitrage, stating that the positions were only to be open for a maximum of a day, for the deal to be called an arbitrage. Trading, is, consequently, the complementary activity, where positions are open for longer periods than a day.

We also wanted the firms to distinguish between three types of arbitrage. The taxonomy given is:

- Central Bank arbitrage: arbitrage based upon mis-pricing of Central Banks, e.g., when discounting bills of exchange;
- Intranational arbitrage: when money- or capital markets within a country due to regulations or restrictions have opportunities for arbitrage;
- International arbitrage: when opportunities for arbitrage occur between different international markets due to regulations imposed by one or more of the regulatory bodies;
- Triangle arbitrage: when opportunities for arbitrage occur in markets which are not caused by regulation.

These activities were also to be ranked according to their importance for the operation's profitability, if conducted.

The same taxonomy was applied for describing the trading activities, with the exception that triangle arbitrage was not included in the set. The importance for the firm's results was also to be stated in this question.

8.3.2.2 Part 2- lending activities

This part was to be filled out by those firms which lend money to agents, and establish loan documentation when doing so. This last requirement we imposed in order avoid studying ordinary trade credits.

The first question stated concerns the volume of loans that has been granted to the firm's own customers, suppliers or third parties at the end of 1985, 1986 and 1987. Furthermore, questions are put about the background of loan officers and whose computer capacity the lending unit uses. Finally, the maturity of the loans are to be stated in percentiles and the period for which the interest rates are fixed is to be stated within three broad ranges of maturities.

8.3.2.3 Part 3- leasing activities

This part was to be answered by firms acting as lessors, either to clients, unrelated parties or to other group companies. The questions are the same as in part 2, with two exceptions. First, instead of the volume of leasing to the firm's suppliers, the officer has to state what volume of equipment the firm is leasing to other firms in the group. Furthermore, only five ranges of the percentage of the leasing contracts that have interest rate adjustments clauses are given to select from, without specifying the maturity of the contracts in this question.

8.3.3 Response rate analysis

The survey was mailed in March 1988, and the respondents were asked to respond until May 27. At that stage, the response rate was considered far too low, and all non-responding firms were called and asked to participate. Some firms received a new set of surveys. In August and September those firms still not having answered or declined to participate were once again contacted and after this, we stopped contacting non-respondents.

8.3.3.1 The non-responses, an analysis

The survey has been answered by 34 firms. 12 firms did not want to participate and two firms were excluded from the sample for reasons stated above. This gives us a response rate of 70.8 per cent.

There seems to be a certain pattern in the non-responding firm's when ranked according to size. The 'mid'-tier firms seem to have been less inclined to answer the survey. The size of the firms, to a certain extent, seems to explain the response pattern. See Table 8.1

Table 8.1 Response pattern in three tiers grouped according to size

	Top 16	Mid 16	Low 16	Total
Responding	15	8	11	34
Non-responding	1	8	5	14
Response rate	93.8%	50.0%	68.8%	70.8%

A probit analysis was run on the response data, with the firm's ranking according to size as explanatory variable and the response as the dependent variable. The rank variable was significant at the 1 per cent level (t-value 3.4964), but the parameter was small (0.01159). The result seem to indicate that there is a small but statistically significant positive increase in the likelihood of a response with increasing rank.

Furthermore, observation of the responses reveals that one type of industry has no responses, but in all other industries at least one of the actors seems to have answered the survey. It is also evident that firms having been purchased by another firm after 1987, have not responded to the same extent as other firms.

We have complemented our survey with data about those firms which did not respond, gathering data from published sources or interviews. This enabled us to identify which of the non-responding firms that in 1987 had at least one legally separate finance company owned directly by the parent company in the group. Consequently, we obtained data on finance companies for the entire set of firms to which the survey was mailed. We therefore ran a further probit analysis with the

response as explanatory variable and a variable indicating if the firm has a finance company or not. This variable is significant at the 1 per cent variable ($t=3.1552$), and the estimate is 1.068 indicating a 1.06 per cent higher likelihood that a firm answers the survey if they have a finance company.

The non-response therefore seems to be partially explained by the fact that the survey is felt to be less relevant for firms not having more than one financial unit, and therefore is not answered. It also seems as if the response rate to some extent is explained by the size of the firm, possible in a U-shaped manner, where the mid-tier firms, for some reason, have been less prone to answer the questionnaire. We do not find any obvious reason for this. The subsequent growth of the numbers of treasury vehicles and finance companies among the firms studied seems to indicate that some of the firms, at that time, were reorganizing their treasury departments, and might therefore have been unwilling to answer the questions. Industry might have had an effect on the response pattern, but it is difficult to analyze, as the number of firms in each industry is small.

All in all, we perceive the responses as representative for the set of firms we have approached.

8.3.4 Published data

We have used data from annual reports and some public information from government agencies to complement the questionnaire's result. We will only specify here which sources we have used.

8.3.4.1 The annual reports

Data regarding the total volume of covered arbitrage loans has been collected for the entire set of 48 firms from annual reports. As the Swedish FAR (Swedish equivalent of FASB) only recommends publication of the volume of arbitrage loans, Form F-20 reports filed with the SEC have been collected for those

firms not reporting arbitrage loans and which indicate that they file such an report to the SEC⁶⁸. This was done as U.S. GAAP requires the disclosure of the these volumes.

For those firms which did not responding to the survey, a study was made of the annual reports to find any finance companies. These units' annual reports, if they have their legal domicile in Sweden, have been collected from the companies or the 'bolagsbyrån'⁶⁹. This was also done in those few instances were firms responding to the survey stated that they have a finance company in Sweden, but did not indicate its volume in their response.

8.3.4.2 Public information from non-Swedish authorities

An effort was also made to obtain information about the finance companies in those countries where Swedish firms are most inclined to form their non-Swedish finance subsidiaries, Belgium and the Netherlands.

A. The Netherlands

The Netherlands Foreign Investment Agency's Reference list of Foreign Companies (1988) in the Netherlands does list Swedish companies with establishments in the Netherlands, but does not in all cases specify their activities. The names of the subsidiaries do not indicate if they perform any kind of financial activity.

B. Belgium

The Flanders Investment Office -Scandinavia provided us with a list of approved applications for attaining the status as a 'Coordination Centre', where Swedish firms getting this approval could be identified.

⁶⁸ In one instance a SEC report has not been obtained.

⁶⁹ A government agency where all incorporated companies in Sweden file their annual reports.

8.4 The Results

The results are presented under three headings: Organization, Instruments & Funding Policies and Financial Intermediation. Some data from our entire population of 48 firms will be reported under the first and the last headings.

Under 'Organization' we discuss the type of organization used, the formation of separate entities and the centralization decentralization of certain tasks to the financial and industrial units. Under the heading 'Instruments and Policies' we study whether the firms take advantage of the new financial instruments and contracting techniques available, and, if so, in what manner. We also study whether the firms using a treasury vehicle with inbound activities differ in their funding policies.

In the last section, we discuss the volumes of the financial intermediary activities and give a description of the financial intermediation activities performed by the the responding firms. Furthermore, we describe the lending and leasing activities and discuss the results as regards our hypotheses H1-H3/H4.

8.4.1 Organization

Initially, we will discuss the organization of the treasury unit, the formation of treasury vehicles, and go on to discuss in what manner the responsibility fo financial issues is handled between the treasury units and the industrial units.

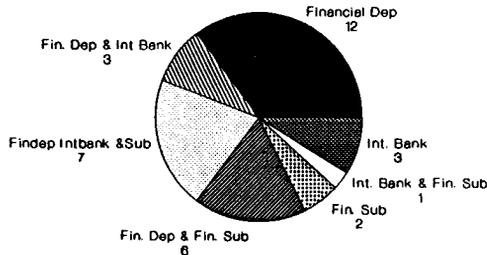
8.4.1.1 Type of organization

The firms had to select from a list of seven alternatives the kind of organization of the treasury unit they perceived to be most representative of their own.

All forms of organization of the financial activities were represented in the sample, see Fig. 8.1, but the straight

organization with only a financial department was the single largest category with 11 firms (one-third) using this type of organization, but two-thirds of the firms (23) had a more complicated organizational structure.

Fig 8.1 Type of Organization



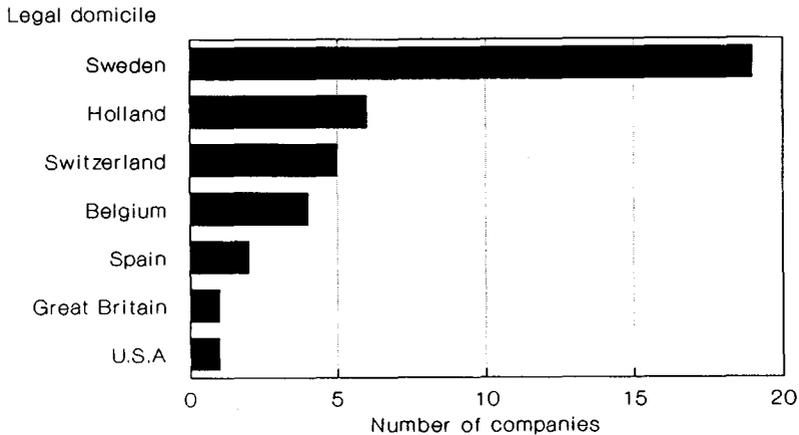
Source: survey

Before reporting the results from our survey we want to report the study we made of public material, as regards the formation of treasury vehicles. This was done for two reasons. First, the survey only gave the firm two treasury vehicles to check, and a few firms on the survey remarked that they had several treasury vehicles. Furthermore, we know that some of the non-responding firms had formed treasury vehicles, and as we only had 14 non-responses, the amount of work was limited. In the case of uncertainty as to whether a unit could be considered as a treasury vehicle we have contacted the firm, which has clarified most issues.

In total, 21 firms [43.7% of the entire set] had formed at least one legally separate entity. We found 39 separate treasury vehicles owned by the parent-company, or in four instances was part-owned by the firm, with the remaining holding of two associated companies ('sfarbolag'). As this is written, the entire ownership has in these instances been transferred to the firm. The legal domicile of the treasury vehicles is shown in Fig. 8.2.

As many as 14 (41.2%) firms reported that they had an internal bank at the end of 1987, and 16 (47.1%) firms reported that they controlled at least one subsidiary which acted as a financial intermediary. The number of reported subsidiaries were 28, see Fig. 8.2. These firms were incorporated primarily in Sweden and in Europe, only one firm reported that they had a financial subsidiary in the U.S.A.⁷⁰

Fig. 8.2 Financial Subsidiaries
Country of incorporation



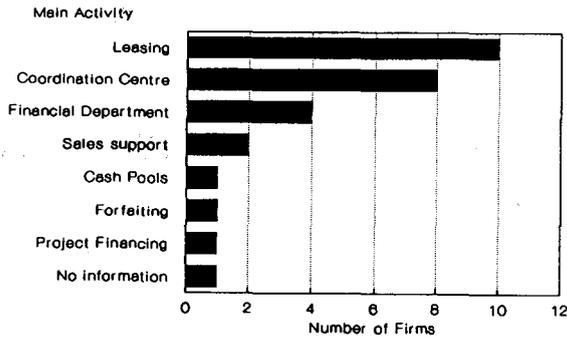
Survey (28 Comp) Annual Report (11 Comp)

We can here see that some of the units are of a more 'internal' nature, inwardly-bound: the Coordination Centres and possibly the cash pools. In those instances, when the entire treasury department has been separated legally from the firm, we do not know if the units are inwardly- or

⁷⁰. It should be noted that this figure is at the low end; the survey only leaves room for data for two financial companies, some major Swedish corporations have approx. 20 financial units spread around the world. Furthermore, we have only studied treasury vehicles that are formed by the group company, some firms let their business areas run the finance arms or even let them form Coordination centres abroad.

outwardly-bound. The rest of the finance companies could be described as treasury vehicles for outwardly-bound activities. This distinction will at times be made when we discuss the function of the different units.

Fig. 8.3 Main activity



Source: Survey

It can also be noted that some of the vehicles are highly specialized. From Fig. 8.3, we see that ten of the reported firms are leasing vehicles and eight Coordination Centres, but, on the other extreme, one firm moved its entire financial operations into a separate legal entity, which is about as general in scope as possible.

We have studied some company-specific characteristics which can be associated with the formation of internal banks, inwardly- or outwardly-bound treasury vehicles. Based upon the experience of the U.S case studies, we can imagine that the size of the operation is of importance when one forms separate treasury vehicles. Furthermore, we know from the studies of U.S firms' treasury organization, that the firms require a certain level of international sales to form special treasury units. We have also encountered the

statement that 'over'-liquidity could be one variable explaining the formation of treasury vehicles. We will not test this hypothesis, as it is too closely linked to the question of what the appropriate level of liquidity is, but we will show some descriptive statistics related to the concept of liquidity. Finally, we will study whether the complexity in the financial units internal organization is linked to the size of the firms' total sales abroad, as indicated by Robins and Stobaugh's 1970-study.

A. Size and 'over'-liquidity

We run two probit models with the existence of a finance company and an internal bank as dependent variable and a constant and the turnover as explanatory variables, the results are reported in Table 8.2.

Table 8.2 Size, liquidity and the formation of internal banks and finance companies

Explanatory Variable	N	n	Model	0 -hypothesis rejected at ⁷¹
Turnover	34	34	FINCO= -0.8655** + 0.0554**TO	5% level
	34	34	IBANK= -0.8378** + 0.0394* TO	1% level
Liquidity	34	31	FINCO= 0.5129 - 0.0321LIQ	2.5% level
	34	31	IBANK= 0.1209 - 0.0152LIQ	NOF at 5%

OMS : 1987 turnover in billion SEK;

LIQ : 1987 cash and marketable securities/1987 turnover;

FINCO: firm having resp not having a finance company;

IBANK: firm having resp not having an internal bank;

N : number of responding firms for the survey;

n : number of cases for which model was estimated;

* : The coefficient is significant at the 10 per cent level;

** : 5 per cent level;

*** : 1 per cent level.

Analysis: we see that larger firms are more likely to have finance companies, and that the likelihood of having a finance company increases by 0.05 per cent with each billion SEK in 1987 turn-over the firm reported. This coefficient is

⁷¹ This hypothesis states that neither the variable(s) coefficients are non-significant, taken together.

significant at the 5 per cent level. The likelihood of having an internal bank increases with turnover, at a 10 per cent significance level, but there the effect is smaller than for finance companies. Nevertheless, the material gives us reason to fairly confidently specify the size of the firm as a factor determining whether the firm forms separate finance companies or internal departments to handle some treasury activities.

The above data seem to reject the notion that the liquidity of the firm is associated with the formation of internal banks or finance companies. The coefficients are negative, but not significant, on the 10 per cent level. As we do not know what 'over'-liquidity is, we cannot be too specific, we only note that our measure seems rather to have a negative influence on the formation of treasury units: internal banks or finance companies.

We found above that the treasury units could be described in two categories: special purpose external vehicles and inwardly-bound treasury vehicles or units. We have formed a variable, TUNIT which collapses those units which are either internal banks or Coordination Centres. A total of 14 firms has at least one of these treasury units. We have tested the same type of variables for those 10 firms reporting that they have a leasing vehicle. The results of the probit analysis is reported in Table 10 3 below.

Table 8.3 Size, liquidity and the formation of treasury vehicle and leasing companies

Explanatory Variable	N	n	Model	0 - hypothesis rejected at	
Turnover	34	34	TUNIT= -0.7436**	+ 0.0325*OMS	2.5% level Not at 5%
	34	33	LEASC= -0.9251**	+ 0.0110 OMS	
Liquidity	34	30	TUNIT= 0.4781	- 0.0104LIQ	Not at 5% Not at 5%
	34	30	LEASC= -0.6494*	- 0.0013LIQ	

OMS : 1987 turnover in billion SEK;
LIQ : 1987 cash and marketable securities/1987 turnover;
TUNIT: firm having resp not having an internal bank or a Coordination Centre;
LEASC: firm having resp not having an internal bank;
N : number of responding firms for the survey;
n : number of cases for which model was estimated;
***** : The coefficient is significant at the 10 per cent level;
****** : 5 per cent level;
******* : 1 per cent level.

Analysis: for the formation of the treasury vehicle we once again observe a size dependence, but statistically less certain than for finance companies, the coefficient of the turnover variable is significant on the ten per cent level but the null hypothesis for the equation as such is only rejected at the 25 per cent level⁷². The liquidity does not seem to have any effect upon the formation of a treasury unit, the coefficient is small and negative, and is not significant.

Among the responding firms, ten had a leasing company and we ran a probit analysis with the same independent variables as in the other cases (see Table 8.4 for the results). Neither size nor liquidity seem to affect the formation of a leasing vehicle; other reasons must exist.

B. Foreign sales

We further tested if there was any correlation between the formation of an internal bank or finance company and a large share of foreign sales. If Swedish firms are in Stage 3 of the organization of the firm's treasury operations, this would indicate a more complex structure of the firm's operations. The high foreign turnover is conjectured to indicate a higher degree of complexity in foreign operations and consequently may present an explanation for the complex operations. The results are reported in Table 8.4

72

We have tested at the ranges 1.0, 2.5 and 5.0 per cent.

Table 8.4 Percentage of sales abroad and formation of finance company and internal bank

Explanatory Variable	N	n	Model	0 - hypothesis rejected at	
% of turn-over abroad	34	31	FINCO= -1.0858	+ 1.5777PCFIO	NOT at 5% level
	34	34	IBANK= 0.8378	- 1.2519PCFIO	NOT at 5% level
34	31	FINCO=-2.7117 + 0.0112**OMS +1.8894*PCFIO		at the 5% level	
34	31	IBANK= 0.2459 + 0.0357*OMS - 1.6568*PCFIO		at 2.5% level	

OMS : 1987 turnover in billicon SEK;

PCFIO: 1987 sales outside of Sweden over 1987 total turnover;

FINCO: firm having resp not having a finance company;

IBANK: firm having resp not having an internal bank;

N : number of responding firms for the survey;

n : number of cases for which model was estimated;

* : The coefficient is significant at the 10 per cent level;

** : 5 per cent level;

*** : 1 per cent level.

Analysis: the effect of foreign turnover is somewhat difficult to assess. There is a fairly large coefficient for both internal banks and finance companies, but they are not significant. Interestingly enough, the signs are different; positive for the finance company equation, indicating that a firm with large foreign operations seems inclined to form finance companies: The opposite is true in the equation for the internal bank, there the foreign turnover variable obtains a negative coefficient. Too far-reaching conclusions cannot be drawn from these observations, as the the total model statistically is not too significant.

We tried to get more elaborate model of the factors influencing the formation of treasury vehicles and units and therefore ran a model where we tried to determine the effect of turnover on the formation of treasury vehicles, as well as any effect from the share of foreign turnover. The results are reported in Table 8.4.

Analysis: the model seem to be most significant for financial companies, where the foreign turnover coefficient is

positive, fairly large as well as significant at the 10 per cent level. It indicates an increasing probability that a firm forms a finance company if it has a large percentage of its sales outside of Sweden. The opposite seems to be true for internal banks, where the coefficient is negative. This coefficient is significant at the 10 per cent level, indicating that the probability of forming an internal bank decreases with an increasing turnover abroad. This model seems better at explaining the existence of an internal bank, the hypothesis that both coefficients are null is rejected at 5 resp 2.5 level which is better or equal to the models which only included the turnover or percentage of sales abroad. We can observe a pattern where size has a positive influence on the formation of treasury vehicles, but the percentage of foreign sales seem to differentiate between the formation of internal banks and finance companies. The latter seems to be formed by firms having higher percentages of sales originating from abroad, and the latter by firms having a more domestic scope.

C. Complexity

From early U.S. experience we have seen that large U.S. firms' international treasury operations evolve over three different stages: a simple level where only some financial officers handle international issues at the treasury/finance department: a more centralized one where the issues are handled centrally at a level below the CFO/group treasurer's and finally, a third stage where the firm's international issues are handled in a decentralized manner under different guidelines. The applicability of this reasoning to Swedish firms has been discussed previously, but we ran a crude test of the complexity of the treasury operations of the firm against the international sales of the firms. We formed a variable where the level of complexity was represented by the number of treasury units identified in the survey, COMPLX. We then run a logit model with COMPLX as dependent variable and foreign turnover in absolute terms as the explanatory variable. The results are given in Table 8.5

Table 8.5 Foreign turnover and complexity in treasury operations

Explanatory Variable	N	n	Model	0 - hypothesis rejected at 1%
Turnover abroad	34	31	COMPL(3)=-2.76671*** -0.008596FOMS	$-0.01761^{**}FOMS_1 + 1.6261C_2$

FOMS : 1987 turnover abroad in billicon SEK;

COMPL: the number of treasury vehicles plus internal bank, if existent.
(coded as 1; 2 or 3 with the latter catching units with more than two units)

N : number of responding firms for the survey;

n : number of cases for which model was estimated;

* : The coefficient is significant at the 10 per cent level;

** : 5 per cent level;

*** : 1 per cent level.

Analysis: the coefficients are weighted against the highest score (in our case=3) and are difficult to assess. The model as such seems to be significant, the null hypothesis being rejected at the 1 per cent level, but the result is less clear. First, there is a problem with the coding of the variable, as the complexity is measured as a trictomous variable, but the number of treasury vehicles, particularly among the larger firms, could be greater. Therefore, the results have to be interpreted with some caution. We do not observe any large coefficients here, but the ones we find are negatively correlated with FOMS, and as this variable is expressed in kronor terms and we found a significant impact of total turnover over the formation of treasury vehicles, the data seems to indicate that foreign turnover does not significantly affect the complexity of treasury operations, or we have latent variables cancelling out the effects of the complexity.

8.4.2 Centralization and decentralization

In this section, we report on how the firms distribute the responsibility for 22 different financial activities. The findings are reported under three headings: 'Funding & placement activites' 'Lending & leasing' and 'Risk management'.

Table 8.6 Centralization and decentralization of financial activities in Swedish firms in 1987: funding and placement.

N=34	Centralized to one Fin. unit		Centralized to Financial units		Shared Responsibility		Decentralized to Ind. units	
	n	%	n	%	n	%	n	%
Borrowing: Swed Banks	25	75.8	2	6.1	5	15.2	1	3.0
Borrowing: Foreign Ba	19	57.6	3	9.1	10	30.3	1	3.0
Borrowing: Swe Money M	28	93.3	1	3.3	1	3.3	-	-
Borrowing: For Money M	24	85.7	1	3.6	2	7.2	1	3.6
Borrowing: Swe Cap M	30	90.9	2	6.1	1	3.0	-	-
Borrowing: For Cap M	26	92.6	-	-	1	3.6	1	3.6
Cash Management	23	67.7	3	8.8	7	20.6	1	2.9
Placement: Sw Money M	33	97.1	-	-	1	2.9	-	-
Placement: For Money M*	16	94.1	-	-	-	-	-	-
Placement: Sw Cap Mkt	32	96.9	-	-	1	3.1	-	-
Placement: Sw Stock M	16	94.1	-	-	-	-	1	5.9
Arbitrage	26	83.9	4	12.9	1	3.2	-	-
Position taking	25	78.1	5	15.6	2	6.2	-	-

* One missing value

Funding & placement

The findings are fairly easy to interpret, but as we lack a benchmark against which we can measure centralization we can only observe that the pattern of centralization-decentralization seems to differ somewhat between the

different activities. The placement activities seem to be more centralized than the lending activity. In particular, bank lending activity abroad seems to be more decentralized to the industrial units.

The total decentralization of these activities also seems to be rare. At the most, the industrial firms are given a shared responsibility for the activity. This is especially true for the placement activities, where only a few industrial units seem to control the activities.

Table 8.7 Centralization and decentralization of financial activities in Swedish firms in 1987: financial intermediation and financial risk management

N=34	Centralised to one Fin. unit		Centralised to Financial units		Shared Responsibility		Decentralised to Ind. units	
	n	%	n	%	n	%	n	%
Lending to customers	8	44.4	-	-	2	11.1	8	44.4
Lending to group unit *	27	84.4	5	15.6	-	-	-	-
Lending to unrelated	14	73.7	3	15.8	1	5.3	1	5.3
Leasing to customers	10	76.9	-	-	1	5.3	2	10.5
Leasing to group comp	15	79.9	1	5.3	-	-	3	15.8
Leasing to unrelated	6	100	-	-	-	-	-	-
Exchange- Rate Hedging	24	70.6	1	2.9	5	14.7	4	11.8
Internal forward cont	23	88.5	2	7.7	1	3.8	-	-
Tax- considerat**	27	90.0	-	-	3	10.0	-	-

* One missing value ** Two missing values

The observed pattern seems to be logical, the less complex tasks of borrowing money from the local banks seem to be decentralized, while the more complex tasks of running the

funding activities in the financial markets are centralized to the finance department.

Lending and leasing

The lending activities and the leasing activities seem to be more decentralized than the funding and placement activities of the firm. It can be claimed that the customer-related lending activities especially are more decentralized than most other activities because the ties to the customers seem to affect the locus of responsibility for the lending activities. Lending or leasing to unrelated parties is, on the other hand, totally centralized to the financial units. Here there seems to be no need to use the competence of the industrial units, and therefore the finance department takes the entire responsibility for these activities.

Risk management

The responsibility for handling of exchange rate exposure seems to be spread more evenly across the organization. Nevertheless, as 73.5 per cent of the firms had the responsibility localized at the treasury units it can be regarded as a fairly centralized activity.

The centralization/decentralization dilemma of currency hedging was, consequently, not totally resolved. 27.6 per cent of the operative units had the responsibility or shared responsibility for exchange rate hedging. On the other hand, the desire to keep the exchange rate hedging decisions with the industrial units, without letting these units take real financial positions, was in many cases satisfied by the introduction of internal hedging contracts, which gave the operational units compensation for efforts to forecast the exchange rate, while the financial department was able to create a financial position in accordance with their views. Such contracts were used by 76.5 per cent of the firms.

We have compiled various frequency tables in order to see if there seemed to be a difference between organization of units

with a treasury vehicle and those without such a vehicle. We found no discernible patterns. The degree of centralization measured as the number of activities actually performed with sole responsibility on the part of the treasury unit over the total number of financial activities performed by the firm showed that firms with treasury vehicles were somewhat less centralized; the firms without a treasury vehicle conducted 90.2 per cent at the treasury units. The corresponding figure for firms with a treasury vehicle is 81.7 per cent.

8.4.3 Instruments and funding policies

We will now report our findings of what instruments the firms use as well as in what manner the responding firms use the different sources of funds to finance their operations.

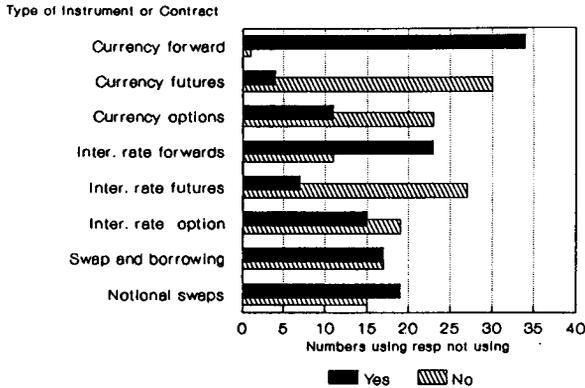
8.4.3.1 Use of instruments

The use of various financial instruments shows that the firms nowadays apparently use a broad range of instruments when they hedge, conduct arbitrage or take positions (See Fig. 8.4 for details). Only futures seem to have difficulties in becoming accepted by Swedish CFO:s. It is interesting to note that in spite of the fact that unfavourable treatment of currency options was lifted in 1986, only one-third of the firms used them at the end of 1987.

8.4.3.2 Funding policy

We asked several questions relating to the funding policies of the firms. The firms were asked to report their sourcing of funds as a percentage of their total turnover. This ratio was to be given for four different categories of sources of funds: bank lending, both from foreign and Swedish banks; money market funds: foreign and domestic capital market funds (with a time to maturity of the instrument exceeding one year) from the Swedish market as well as from abroad. Finally, the firms were asked to state the percentage of standby lines of credits, swing lines etc promised to the firms. The results are given in Table 8.8.

Fig. 8.4 Instruments and Contracts



Source: Survey

Table 8.8 The mean of type of sourced funds over turnover

Source	Mean	Standard deviation	Number of responses ⁷³
Swedish banks	9.06%	9.73	23
Foreign banks	10.74%	10.63	23
Swedish money mkt	2.04%	4.95	24
Foreign money mkt	3.75%	4.98	24
Swedish capital mkt	4.64%	6.05	24
Foreign capital mkt	4.73%	6.63	26
Backup lines etc	12.12%	8.29	30
Liquidity	21.56%	24.99	30

As the data is cross sectional in nature and as we do not have any time series available, we cannot draw any very far-reaching conclusions, but we can observe that the average bank lending over turnover ratio for Swedish banks

⁷³ A number of firms reported their sources of funds as a percentage of the total of the sourced funds. These responses were adjusted with the ratio Total funds sourced externally/Total Turnover.

is smaller than the same ratio for funds provided by foreign banks.

Second, and more interesting, the role of the banks seems to be dual. They perform both traditional bank lending as well as the granting of standby lines of credit. The correlation between the different measures gives some interesting insights (see Table 8.9). Pearsson's correlation coefficient has been calculated with pairwise deletion of missing values, and the number of pairs used when calculating the correlation varies between 23 and 30.

Table 8.9 The correlation between sources of funds

	SWBank	FBank	SWMM	FMM	SWCapm	FCapm	Backup	Liqui
SWBank	1.0							
Fbank	0.130	1.0						
SWMM	-0.140	-0.247	1.0					
FMM	-0.385	0.014	-0.076	1.0				
SWCapm	-0.060	0.003	0.154	0.1125	1.0			
FCapm	-0.400	0.021	-0.039	0.478	-0.051	1.0		
Backup	0.030	0.190	-0.226	0.266	0.200	0.111	1.0	
Liquidi	0.070	0.541	-0.050	0.186	0.121	0.100	-0.179	1.0

There seems to be a negative correlation between bank borrowing from Swedish banks and the use of foreign money and capital markets. Large Swedish firms apparently have the foreign markets to finance their activities, instead of borrowing from Swedish banks.

Interestingly enough, foreign and Swedish bank lending do not seem to be substitutes for each other. Furthermore, there is a relatively strong correlation between the use of foreign money and capital markets, i.e. once the firm has tapped foreign markets it can easily go on to use other instruments.

Table 8.10 The sourcing of funds in firms with different organizational structure

Mean %-value Source	All firms	Without I. Bank	With I. Bank	Without F.Comp.	With F.Comp.
Sw banks	9.057	12.209	6.167	13.142 **	4.600
Fo banks	10.735	11.345	10.175	9.517	12.064
Sw mon. mkt	2.040	0.986	3.382	1.577	2.542
Fo mon. mkt	3.747	4.743	2.750	2.054 *	5.747
Sw cap. mkt	4.636	2.769	6.658	4.086	5.336
Fo cap. mkt	4.727	3.857	5.742	4.100	5.458
backup	12.117	11.382	13.077	9.900	14.650
liquidity	21.567	27.817	18.869	30.294	16.500

Sw banks: Swedish banks; Fo banks: Foreign banks; Sw mon. mkt: Swedish money market; Fo mon. mkt: Foreign money market; Sw cap. mkt: Swedish capital market; Fo cap. mkt: Foreign capital market; backup: backup sources of liquidity; liquidity: liquidity at hand.

The differences between the two classes of units were t-tested with a pooled variance. H_0 was set as $dm=0$. In spite of the fairly large differences in the groups' means, there are only two significant differences: first, firms having finance companies appear to rely more on the foreign capital markets than firms without finance arms. The hypothesis that there is no difference between the means is rejected at the 10 per cent level. Second, and perhaps interrelated, the firms with finance arms rely less on Swedish banks to provide them with financing, this time the hypothesis of no difference is rejected at the 5 per cent level.

We should not, in this context, overemphasize the results. We have tested 16 different means and we have a problem with 'mass significances': by the logic of the test procedure, some of these tests should result in significant differences even if there were none. One could, of course, look at the figures as a description of the situation of the firms in the set - basically the larger manufacturing, construction and transport firms in Sweden. In this case, there is no underlying population from which we have drawn these results. As we consider the responding firms as representative of the

entire set of firms, the figures represent the entire population.

Firms without finance companies appear to rely more on the Swedish bank system for their funding needs than do those with a finance company. There does not seem to be any difference in the reliance on foreign banks between firms with or without finance companies. Furthermore, firms with finance companies seem to depend more both on backup facilities and on money and capital markets. The claim that finance companies are formed in order to handle excess liquidity appears to be contradicted by the findings, at least if liquidity is measured as a percentage of total turnover. Firms without a finance company seem to have almost twice the liquidity of firms with a finance company.

The results are less clear when considering sourcing of external funds for firms with and without an internal bank. Firms with internal banks seem less dependent upon the banks than those with an internal bank. It should be noted though, that the reliance upon the banking system would be much higher if those organizations where the entire finance department is seen as an internal bank had not been excluded, but as the subgroups are small we cannot meaningfully make any test of this.

8.4.4 Financial intermediation

We have found evidence of four categories of financial intermediation in the survey: arbitrage, trading, lending activities and to a lesser extent, leasing.

8.4.4.1 Arbitrage

The companies were asked what kind of arbitrage activity they conducted and were asked to choose from four different classes of arbitrage activities and rank them in accordance to their importance to total firm profit. Arbitrage was defined as deals where the positions are only allowed to be

open for a day. Different kinds of arbitrage activities were to be specified, as defined above.

31 firms noted that they conducted this kind of activity. It is interesting that international arbitrage was the most frequent, and triangle arbitrage the least frequent of those activities mentioned. International arbitrage was also ranked as the most profitable by a majority of those firms conducting arbitrage and who answered this question. See Table 8.11.

Table 8.11 Ranking of the different categories of arbitrage

Type of arbitrage	Number of answers	Mean Ranking
International	22	1.55
Triangular	14	1.76
Central Bank	18	2.22
Intranational	16	2.33

The total volume of arbitrage loans that can be netted out when preparing the annual statements for the total set of the 48 firms studied is MSEK 22 623.2, as reported in their 1987 annual reports. This figure is based upon 19 firms stating whether they have this kind of arbitrage loans in their annual statements, two of them declaring this not to be the case, one declaring at a telephone interview that the amounts were so small that they reported the loans on the balance sheet, and 28 who did not comment the issue. The amount most likely underestimates the total volume of arbitrage, unless those firms who do not report their loans in the annual reports but claim that they perform arbitrage activities do not perform these activities at the end of the year or report them on their balance sheets.

8.4.4.2 Position-taking behavior

The taking of positions is defined as follows: Position-taking: for a period longer than a day having a view of the future development of financial variables and placing or making commitments in accordance with this view.

Three of the categories mentioned earlier are given: intra, inter and triangular position-taking.

It is worth noting that 32 firms claim that they conduct this type of activity, but 10 of these did not want to specify what kind of positions they took, as compared to only three firms reneging upon the specification of what types of arbitrage they conducted. The ranking is given in Table 8.12. The data seems to indicate that the international positions, i.e. when there are national regulations that are perceived as creating lasting price distortions between national markets, should be the most important to firms' profitability.

Table 8.12 Ranking of different categories of position-taking activities

Type of position	Mean Ranking	Number of responses
International	1.16	12
Intranational	1.64	15
Triangular	1.67	10

We are unfortunately unable to specify the volume of these activities.

8.4.4.3 Lending and leasing

We will discuss the total volume of the activities, and then we will discuss the lending and leasing volumes reported in the survey. Furthermore, we will discuss the maturity and the period the interest rates are fixed on the contracts.

A. Volumes of financial subsidiaries

Twelve financial subsidiaries had a total balance sheet volume of MSEK 71.505⁷⁴. For seven firms we could not find

⁷⁴ This figure does not include 7 firms which did not report the balance sheet volume of the financial subsidiary. Furthermore, arbitrage loans do not have to be

the volume of the balance sheets, these were primarily foreign financial subsidiaries. It should be noted that the information on firms given in the balance sheets is not detailed enough for us to assign volumes to different activities, and also that the firms are able to deduct arbitrage activities from the volumes. Therefore, we can only give these figures, without being able to advise the reader further as to exactly what kind of financial intermediary activities the 71 billions are directed into. The total volume of the finance companies' balance sheets is also not a relevant measure, as the firms need not use a financial intermediary to conduct these activities. The figure only gives an indication of the relative size of the operations, not a description of the total volumes which are intermediated by Swedish firms.

B. Lending volume

Eleven firms answered the second part of the survey. Lending was primarily directed towards customers and unrelated. The volume of lending to suppliers was insignificant (MSEK 238 in 1987). The development of the lending activities is depicted in Fig. 8.5. It shows a steady rise in the volume of business, but no dramatic increase in the volumes intermediated. The number of responses is too low for us to draw any general conclusions about the trend of the volume of manufacturing firms' lending activities.

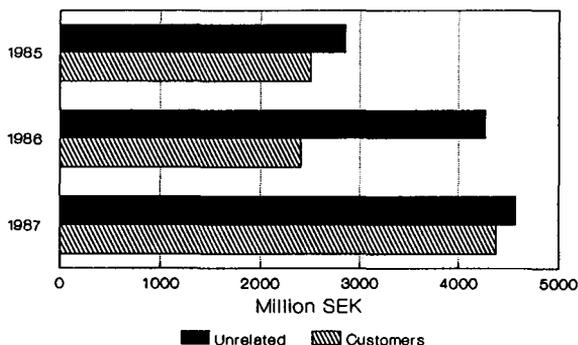
C. Leasing

Twelve firms answered the survey concerning the leasing activity of the firm. As 15 firms claimed that they had leasing activities, we obtained a response rate of 80 per cent for this survey. For some of the firms which had indicated that they had leasing activities these were performed by a separate leasing vehicle, and we obtained

included as a balance sheet item, given that certain conditions are fulfilled. So this figure probably underestimates the total volume of financial intermediation performed by Swedish firms.

these firms' annual reports for 1987. Taken together with the total volume of leasing reported in the surveys the firms leased a total volume of MSEK 1306.6 in 1986 and a total of MSEK 2564 in 1987. This is of course a minimum amount of leasing, as we have only been able to identify those units which are run in separate companies. Where the business is conducted on the firm's books, we have not been able to identify the volumes.

Fig 8.5 Lending
Customer versus Unrelated



Generally, the leasing operations are not particularly large. Only a few Swedish firms seem to conduct any major activities in this area. The volumes are reported in Fig. 8.6.

It is apparent from the data that volume tends to increase, especially in the unrelated leasing area, while volumes of the other two types of leasing activities, at least at the point we measured them, seem to grow fairly stable over time.

D. Maturity and period of interest rate fixing

The average maturity of the loans seem to be fairly short. The responding officer had to check the percentage of the loans that had maturities (1) shorter than one year, (2) between one and five years and (3) a time to maturity

exceeding five years. The results are presented in Table 8.13.

Almost half of the loans were of a short term nature, but one-fifth of the loans have a longer time to maturity than five years. For leasing, the bulk of loans, approximately 80 per cent, seem to be of mid-term maturity.

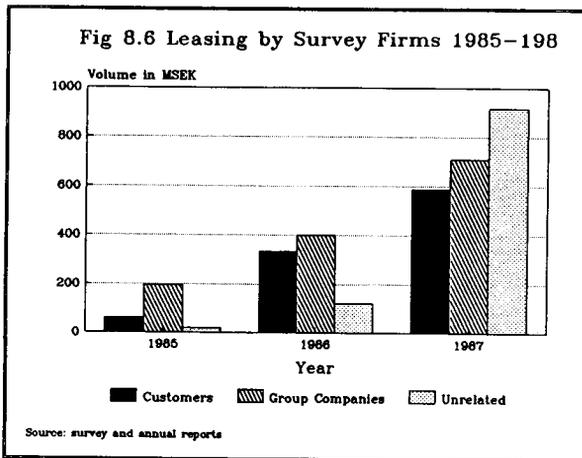


Table 8.13 Mean of percentage of loans with an original time to maturity

Original Maturity	Mean of share of portfolio	
	Loans	Leasing
Less than a year	47.7%	8.9%
Between a year and up to five years	32.3%	78.9%
Longer than five years	20.0%	12.2%

The loans granted by the firms do not seem to have any characteristic time period during which the interest rate is fixed. 56.1 per cent of the portfolio of loans had a shorter interest fixing period than a year, 42.5 between one and five years and only 2,3% longer than five years. Of the leasing agreements 71.6 per cent had floating interest rates.

8.4.5 The hypotheses

The hypotheses mentioned at the outset of this part seem to have been answered by the survey.

8.4.5.1 Segmented market hypothesis.

The firms clearly perceive and act upon market segmentation between and within different financial markets. One CFO wrote a remark about Central Bank arbitrage, claiming that his company had encountered this in West Germany and Great Britain. Further, the firms seem to find arbitrage opportunities between unregulated markets. They are also willing to act upon their views in the markets regulated as well as unregulated and take positions. This seem to support the hypothesis that firms can act as financial intermediaries in the sense of Gurley and Shaw's (1960) financial intermediaries. Nevertheless, these issues cannot be discussed without discussing the entire impact of changes in financial variables on the firm's profitability, a discussion we postpone to the final chapter.

8.4.5.2 Computer capacity- economies of joint production

There is some evidence that finance departments firms use the same data capacity as its parent company. As half of the intermediating units had its own equipment, this does not seem to be the decisive factor. As many of the firms responding to Part 2 and 3 did not answer the question the responses are difficult to interpret. Against this argument it must be remembered that the type of activities requiring large data capacity not seems to be conducted in Sweden: asset-backed securitization.

8.4.5.3 Credit screening

The firms were asked about the background of their credit officers. As we expected larger credit departments, we asked the person responsible for the granting of credit to check the number of persons mainly working with credit analysis to check the number of officers within certain ranges. Most firms only had one person, conducting the credit screening on company level, with no-one performing this function in other firms. We are, therefore, unable to give exact numbers in this context.

Few of the firms or departments had employees whose primary task was to evaluate loans, but firms which did showed that none of the credit officers had previously worked for one of the firms' customers, one was recruited from within the company, one from the firm's industry and one from other unspecified activities. Most had a background from banks or finance companies. These findings do not support the hypothesis that the firms have an information advantage over banks when lending, especially after considering that the volume lent to subjects unrelated to the firm exceeds the lending to clients.

8.4.5.4 The interest carrying capacity- some remarks

We did not find any evidence in the survey material that Swedish firms take any extensive interest rate risk in their lending or leasing activities. They seem to be conservative, and do not offer long periods of fixed interest rates - these are either floating or revised fairly frequently.

8.5 Concluding remarks

We will at this stage not draw any further conclusions from this material, most of them have been drawn as we reported our findings. The total analysis of what we have found in this and the two previous parts is reported in the following chapter, which will draw together the various elements of this thesis.

This part contains some descriptive sections describing aspects of the organization and activities of financial treasury departments in large Swedish private firms. It has concentrated upon the external activities, of the interaction between the firm, financial markets and the banking system.

We have described the organization of the treasury operations in terms of the units which constitute the financial-treasury department of the firms. We have also discussed how this organization is related to some variables said to influence the structure of treasury operations in U.S firms as well as in Sweden.

We have discussed the division of labour between the financial and industrial units and the degree of decentralization of financial activities. The use of financial instruments and contracts has also been presented. The funding policies of the firm and the possible difference between firms with and without financial companies has been discussed and some data linking the funding behavior of firms and the operational structure has been shown.

We will only point to the linkage between the funding techniques of the firms when they seem to exchange bank loans for borrowing in the short end of the capital market, supporting the liquidity with facilities from the banking system. This has implications for risk sharing between the firm sector and the banking system.

We have also discussed and partially described the outwardly-bound activities of the firms; arbitrage, position-taking, lending and leasing. In addition, we have been able to inquire into the hypotheses H1-H3/H4 and make some remarks as to research direction D4 as regards the survey material. We have been able to report some volumes of these activities, showing that significant volumes are

funneled through the finance companies. The survey was not designed to answer all the of questions related to the volume of the activities, mostly because we perceived it as less likely that the firms would answer questions of this nature.

In the following chapter we will turn to the analysis of the results that we have obtained from this and the previous two parts.

CHAPTER 9

Discussion and Conclusions

9.1. Introduction

Having reported our empirical findings in the three previous parts, we will now make the final analysis of the material. Our research started with the empirical observation that Swedish firms have formed separate treasury vehicles, and we have found that these vehicles are either inwardly- or outwardly-bound. We have also found that these vehicles do not always seem to be necessary for firms to handle their financial activities, internally as well as externally. They are primarily organizational tools, occasionally formed for regulatory reasons. First, we discuss the inwardly-bound financial activities of the treasury. The discussion will be along those three dimensions of the firm we perceive as important to the treasury: the firm's risk, the uncertainty and the hierarchical decision-making within the firm. After discussing the inwardly-bound activities, the formation of treasury vehicles will be discussed. Subsequently, the treasury's interaction with the capital markets and with the banking system will be discussed.

Thereafter, we will state the results concerning the outwardly-bound financial activities of the firms, its size, to the extent we been able to state it, and the hypotheses

to the extent we been able to state it, and the hypotheses and research directions for four types of activities we have found that the Swedish firms conduct: leasing, lending, arbitrage and position-taking activities.

The following section will examine the reliability and validity of our results. The strengthening of observations by multi-point observations within the cases as well as between case studies, survey and public material will be pointed out. Nevertheless, the limitations of a methodology which does not test all aspects of the investigated issues on a larger sample will be underscored.

The dissertation closes with a discussion of avenues of research which seem to be promising, given our findings.

9.2. Inwardly-bound activities: organizational aspects

We want to discuss the organizational issues along the three dimensions of the treasury: the uncertainty reduction, the hierarchical decision-making process and its interaction with the treasury and finally the risk dimension. We will also discuss the interaction between the treasury and the banking sector. Finally we will discuss the formation of inwardly-bound treasury vehicles.

9.2.1 The treasury's three dimensions:

We have previously stated that the treasury has three dimensions which are of relevance for its work internally; first, it is the way it transforms uncertainty to something measurable: the prognosis of future cash flow etc; second, the way the treasury, a staff function, interacts with line managers in the industrial units; and finally, the way the firm handles the financial risk it perceives.

9.2.1.1 Uncertainty reducing systems

We argue that the financial activities of the firm have become very centralized, and that the industrial units

increasingly have been left without responsibility for the structure of their balance sheets. These effects have been brought forward by several factors; first, new ways to finance the firm's operations require that large amounts are borrowed and the ability to borrow cost-efficiently; second, by the need to keep down the working capital when the cost of borrowed funds have increased; third, an essential reason for the firms to be able to centralize the activities has been the large gains which they have been able to reap from their treasury's external activities.

Much of the observed activities have their origin in the internal programs and systems implemented to manage the firm's working capital. For the treasury this has meant the introduction of netting systems, programs for reducing the accounts receivable, reinvoiceing systems and factoring companies: instruments used to centralize the cash management to the treasury.

The case study companies all have had elaborate working capital programs which have resulted in the formation of netting centres, of cash flow reports being sent in, in higher payment discipline between units, etc. In these companies, as we have shown in chapter 5, these activities have saved substantial amounts. It is likely that these activities have also been very profitable for other firms undertaking working capital programs.

Beside the reduction in financial costs, these systems have provided the treasurer with information necessary to transform what was previously uncertain amounts of money generated into assessable amounts. With such systems, the treasurer is fairly well aware of what amounts of different currencies that are likely to be generated, at least for shorter maturities. Here, instead of people handling uncertainty, as in Knight's (1921) view of the firm, systems transform uncertainty to risk, which can be handled in the financial markets.

The treasurer, therefore, attains the information he needs in order to be active in the markets of hedging exchange rate risk. According to the survey, treasurers have also seized the opportunity to centralize not only the cash management, but also the handling of currency risk (Table 8.6 and 8.7).

It is mainly the activities related to the capital markets that are centralized. Neither financial intermediary activities nor borrowing in banks seem to be centralized to the same extent to the financial units or with a shared responsibility between the industrial units and the financial units (*ibid.*).

9.2.1.2 The interaction with industrial units

The treasurers have, to some extent, needed to change the structure of the firm's evaluation systems in order to centralize financial activities. Novel ways of creating internal bargaining systems have also been introduced in order to keep the responsibility of some financial issues at the industrial units.

The centralization of financial activities has not been without problems. Elvestedt (1980) found that there was a need to centralize the decision-making of exchange rate handling, but that the firms need to keep the responsibility for the currency decision with the industrial units in order for these units not to make sub-optimal currency decisions once they are relieved of the responsibility for hedging activities. This problem has been reconcilable.

A large number of the surveyed firms solved this problem through the creation of an internal market. Two thirds of the firms in the sample stated that they issued internal contracts. Two of the case companies used internal contracts. The treasury unit sets a market in exchange rate forward contracts, which the industrial units are then allowed to purchase. The effect, on a group level, of the firm's

exchange rate exposure is nil. These transactions have a real economic effect on the subsidiaries, however, and the industrial managers have to manage the exchange rate exposure from both the industrial and the operational side. The internal market bridges the gap between the industrial level - where the operational exposure is created in the first place - and the treasury with the expertise in handling currencies. The centralization and decentralization issue is thereby resolved, but this adds a dimension to the performance evaluation system.

Furthermore, the cost efficiency provided by borrowing large amount in the foreign capital markets also require that the borrowing is conducted centrally, afterwhich the money has to be distributed to the different industrial units. The firms in the case studies at first seemed to have opened up internal banks, where the different units, besides storing their liquidity could also lend the long term money needed. Abroad, these units initially cash pools organized in the major European countries or a group cash account. They could then borrow the mid and long term money needed from the parent company or, if the borrowing unit was a Coordination Centre or treasury centre, this unit provided the subsidiaries with money. As long as the industrial units are responsible for their balance sheets, the borrowing vehicle will have to provide a better interest rate than the units' own borrowing rate and with the financial structure the units want.

The shuffling of financial responsibility creates problems when evaluating managers. The complex issue of evaluating local management with exchange rate uncertainty is partly solved (see e.g Lessard and Lorange, 1977 for a treatment). It still requires adjustments in the variables the firm uses when evaluating management. When the treasury is responsible for the debt of the industrial units, it can structure the balance sheet in such a manner that its expectations of future developments in the markets can be incorporated into

the industrial units financial structure. The firm thereby creates a financial structure which keeps global financing cost, after taxes, at a minimum, while the units are still provided with loans at market prices. This requires that other performance measures than those often suggested are used (see Östman, 1977 for a comprehensive treatment of how Swedish firms have used ROI-ROE measures when measuring managerial performance).

In Company X, we have found that the internal evaluation criteria of the industrial units have changed, much in line with the wishes of the treasury. The treasury has obtained the responsibility over the financial dispositions of the different industrial units, and the industrial managers are made responsible for more operative variables. These changes were in line with the system in Swedish Match, which already was implemented during the seventies in order to coordinate the activities of the conglomerate. These systems give the treasury unit the responsibility for the financial dispositions of all units. The treasury units of these firms are also responsible for the profitability of the financial activities. In ESAB, the treasury is still a service unit, a staff function whose services must be used by the industrial units if the units are provided with financing with an interest rate that is less or at least equal to that the industrial units can arrange for themselves. This is logical as the industrial units are held responsible for their ROE. The degree of freedom for the firm's treasury therefore seems to depend upon the way the firm's industrial units are evaluated. Hence, there is a tendency for the treasury activities to affect the over-all managerial performance system.

The type of organization might also affect the treasury's ability to centralize the financial activities. Given a organization where the departments/divisions in Thompson's (1967) terms would be called pooled interdependent, the firm will be likely to have a more complex evaluation system in

order to make handle the internal complexities. Company X would be an example, in this respect. Swedish Match, where the 'divisions' are almost independent the evaluations system was fairly straightly straight forward, facilitating the centralization of responsibility for the treasury activites.

ESAB has a situation with a very decentralized management of the of some of the subsidiaries and consequently, in some dimensions more in the vein of a heterachy (Hedlund, 1986). This is probably linked to the lack of responsibility of the treasury activities.

9.2.1.3 The risk dimension

We have argued, as described in 'research direction 4', that the risk dimension is linked to the financial intermediary activities of the firms. We have discussed this at length in Part B, and studied it for one of the companies, ESAB. As ESAB's financial intermediary activities, during the studied period, are fairly small, we have only obtained a demonstration of how one firm after having reduced the uncertainty of its financial exposure has decreased the total absolute financial exposure by its financial dispositions, as measured by our yardstick. But we have also seen how the firm could carry more financial risk, given the nature of its operational exposure.

Our yardstick, though, is different from ESAB's which operates with two different measurers: one flow related, based upon the prognoses of future cash flows, and one which is based upon a mix of the transaction exposure and the translation exposure of the firm. We cannot, therefore, make any further statements about ESAB financial policy besides those made by the Group Treasurer: that ESAB to a minor extent is prepared to take financial risk.

As we have seen above, the treasuries in all three case study firms seem to have increased their efforts to measure the firms' operative financial exposure. Some information is

automatically provided through cash management systems, which gives the firm better information about the financial flows within the firm, as well as of flows between its suppliers and customers.

Separate studies of the operative exposure have been conducted in ESAB. The three firms have also established measurers of the their total exposure: regularly a mix of transaction and translation exposure. Company X and Swedish Match, on the other hand, is prepared to take financial risks, seeing them as being partly hedged by their operational exposure, as they measure it. Hence, it seems as if firms have attained a grasp of their operations' financial risk they have and are in a position to increase or decrease the total financial risk.

The risk involved in financial operations is also measured. Here all firms seem to have a global view and the global portfolio of financial liabilities and assets is managed- with the exception of subsidiaries acting in high inflation countries where the financial transactions have to be handled by the local managers.

This underscores the difference between the case study firms and large U.S. firms in the seventies, as they were described. These firms did not seem to take a global view of their treasury management, rather having a regional responsibility for the treasury. As we pointed out in chapter 1, there is anecdotal evidence that some of the larger U.S. firms are moving towards a global treasury view, but no firm proof has been found in the literature.

The case study firms, to a varying degree, integrate currency and interest rate exposures. Swedish Match has created a portfolio approach where it was able to measure the so-called nil-risk portfolio, which describes a position which would offset all financial risk of the expected future operative cash flows, with one year's horizon. This portfolio

has a dual role: it states the riskiness of the operative cash-flow and it is used as a benchmark against which the financial units act. It integrates interest rate risk and exchange rate risk, but as we understand it, not the risk of changes in the slope of the term structure of interest rates. Company X and ESAB keeps track of the currency exposure and interest rate exposure separately, but in each transaction the interaction between interest rates and exchange rates is considered.

We safely can say that the studied firms have an integrated, global treasury view, were all or most subsidiaries are integrated with the notable exception for units active in high inflation countries. The firms have a global treasury view but have also formed a 'new' type of global treasury management organization with spatial distribution of the treasury operations kept together with modern communication technology and advanced control systems. We think that regional treasury units, with modern data communications networks technology can be managed as if the firm had one portfolio of financial assets and liabilities.

All case study firms perceive some assets as mispriced in the financial markets which they act upon. These are discussed below. The firms, to a certain extent, seem to perform financial activities which 'pure' financial units cannot perform bearing risk and which the firms perceive as having a natural hedge for.

With our measure, the natural hedge would be explained by price rigidity in the markets - primarily of 'pricing to market' behavior among the firms in industries which the studied firms are participating in. We have in chapter 6 reviewed empirical studies where pricing to market behaviour is said to have been observed. This would create situations where firms are able to compensate losses on financial assets, for example, in the wake of devaluation with increased competitiveness in the international markets. The

firm might have a large SEK content in their costs, compared to the SEK content of revenues or it might be active in an industry where prices are fixed in another currency than the Swedish (having a non-Swedish currency habitat), i.e., through pricing to market behaviour. We do not argue that this is the reason for firms to engage in risky position-taking activity, we only point to this possibility.

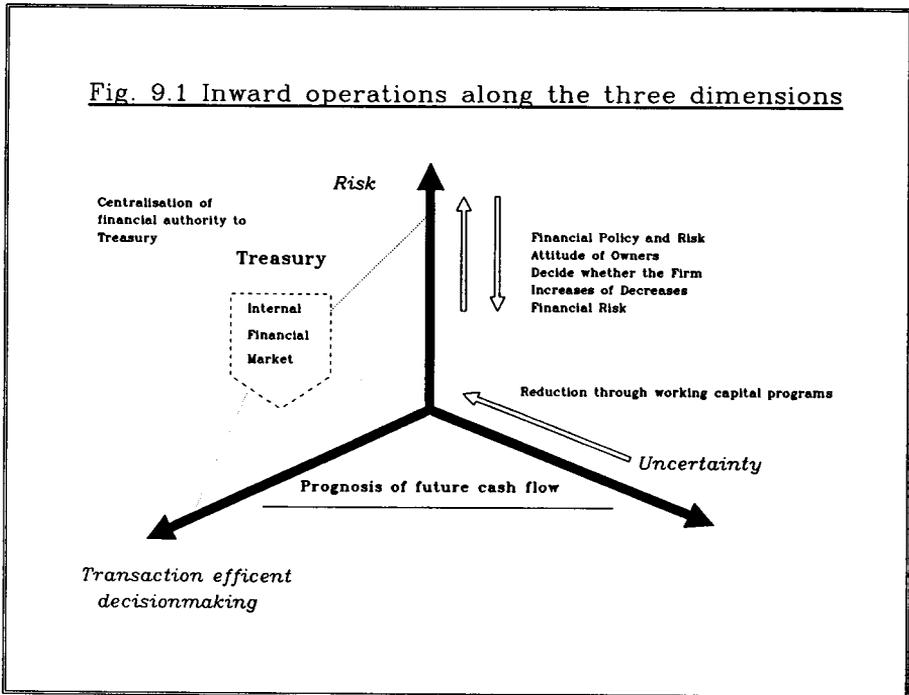
As we have seen, the definition of operation's financial exposure considered relevant by the case study firms is a combination of transaction and translation exposure. The persistent use of these measures is an enigma. Either the prime concern of the treasury is the reported profit, or the complexities inherent in measuring economic exposure makes it 'uncertain' and therefore unmanageable, and a proxy is used instead.

We have also seen how the firms govern treasury's external activities. The riskiness of the operations is decided either by the MD who then informs the board (ESAB); by the CEO, another executive manager and representatives of the owners (Company X); or by the board of directors (Swedish Match). The firm's owners or their representatives are asked what levels of financial risk they are prepared to take on themselves. Through this procedure the financial officers obtains a picture of the risk/return trade offs the firm's owners accept.

The observations as regards the inwardly-bound activities are summarized in Fig. 9.1. The firms seem to have resolved the centralization/decentralization problem of exchange rate management with the creation of internal markets. The centralization of 'real' financial decisions seems to have created a need to alter managerial evaluations systems.

Elaborate systems for handling working capital, with regard to production flows as well as financial flows have increased the firms' ability to assess their future cash flow and to handle the financial risk, i.e. reducing uncertainty. The case

study firms seem to take a different stance as to increasing or decreasing financial risk, as they measure it. Such decisions are taken at levels where the owners representatives are involved.



9.2.2 Interaction with the banking system

Within the three case-study firms most of the financial activities were centralized, but the working capital financing was still made locally, with local banks. This also seem to be the case with many of the firms in the survey, especially where the borrowing from foreign banks is done with the industrial units involved (33.3% had total or

shared responsibility with financial units, Table 8.7). It could be argued that the firms do not want to centralize all bank relations to the central units as this would leave the local firms without any connections to the national payment systems. In many countries banks require the firms to 'pay' for these and other services by keeping some kind of transaction accounts with the bank. A totally centralized cash management system might leave the local unit bank without service for paying salaries and other kinds of small cash items, which it is not necessarily economically feasible to centralize. This emphasizes that firms one of banks' core activities indispensable: the facilitation of a payment system.

There are large gains to be obtained by centralizing financial activities. Besides those mentioned above, we have seen one, which is related to the way firms fund themselves. The case study firms have all started to rely on the capital markets - particularly the foreign capital markets - to finance their industrial and financial activities. All group treasurers through their previous positions were well aware of the opportunities the capital markets opened.

As we remarked above in chapter 5, we have seen that the firms start to fund themselves in the very liquid Euromoney markets with commercial paper programs or floating rates notes. These short term USD loans are transformed into the maturities, base interest rates and currency composition which the firm ultimately wants. Studying the correlation between the different sources of funds of the survey firms, one can see the expected negative correlation between the lending in Swedish banks and borrowing in capital and money markets, in Sweden as well as abroad (Table 8.9). There seem to be a substitution between these two types of borrowing.

There also was a positive correlation between borrowing in the foreign money market and in capital markets, and the use of backup-lines of liquidity (ibid.). On the other hand, the

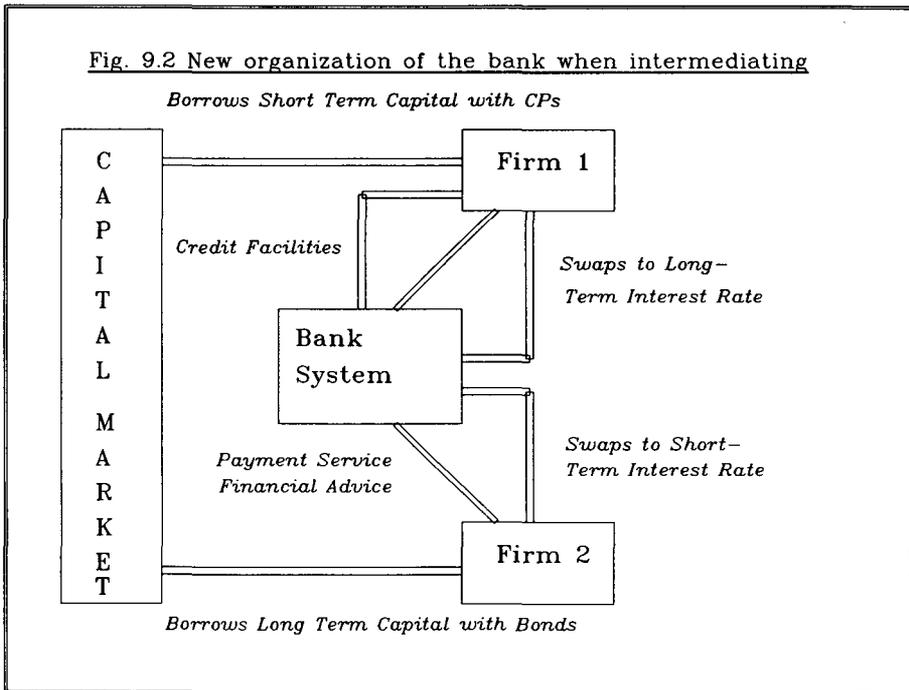
correlation between borrowing in the Swedish money market and back-up lines of credit was negative. There is also a negative correlation between borrowing in the Swedish money markets and borrowing abroad. This seems to indicate that firms borrow money abroad and use back-up lines of credit to support their short term borrowing. This is supported by the findings made in the case studies where the three firms uses the bank system to provide back-up liquidity of the firms. Again, one of the banking systems' core activities is still needed: credit enhancement.

The banks also market and sell the commercial papers for the case study firms. This further indicates that the firms disintermediation is only partial; the firms still need the banks' distribution network and placement power to market their securities, in Sweden as well as abroad.

We therefore conclude that a new pattern of financing has emerged in this study; large parts of the case study firms' funding is raised in the Eurodollar market: through the issuance of commercial papers or FRNs. These dollar loans are later converted into long term money of different currency denominations by swap agreements, where the banks intermediate the swaps. The banks' services to these large customers seem be concentrated to their own core areas: distributing commercial papers, intermediating swap agreements - thereby conducting the credit analysis of involved parties and accepting the credit risk inherent in the swap agreement⁷⁵ - and providing payment service and straight working capital loans to the local subsidiaries. Interestingly, the provision of credit - the transformation of short term money into longer term money - still seems to be conducted by the banking system. In addition, the borrowing facilities of firms offered by the banks to the

⁷⁵ The guaranteeing of swap-transactions has as a consequence that the loans de facto but not de jure are a part of the banks' balance sheets. They become the residual payer in case of the default of an involved party.

firms borrowing in the short end of the market still seems to be guaranteed by the bank's core deposits and the lender of last resort. Consequently we can only talk about a quasi-disintermediation while the securitization of the financial flows seems to be ongoing, see Fig. 9.2.



The role of banks, therefore, seems surprisingly not to have changed much. Many traditional risks are still borne by banks, but the flow of funds and the financing techniques seem to have changed.

9.2.3 Formation of treasury vehicles

We have seen in our case companies how the treasury's activities have become more specialized and have, to a certain extent, been conducted by separate vehicles or internal units set up within the firm, 'in-house banks'. We run several probit and logit models for the companies in the survey to see what factors could explain the formation of

these units. Several characteristics of the firms have in the literature been seen as associated with the formation of different types of treasury units: size, complexity of foreign operations and 'over'-liquidity.

9.2.3.1 Size

The tendency to form these treasury units increases with size - size being the single strongest explanatory variable when forming the units. This is not surprising, as the organization of these units will require that there are fairly large volumes to be handled. The size effect is significant for the probability of firms forming 'in-house banks' (see Table 8.2). Moreover, when we make a distinction in the function of financial separate treasure vehicles in inwardly- and outwardly-bound units and combining with the 'in-house banks' we found a probability of a firm with large turnover forming an inwardly-bound treasury vehicle (Table 8.3), albeit somewhat less significant and smaller.

The results from the survey are also consistent with the case studies. Company X and Swedish Match have a significant turn-over and the firms also form separate treasury vehicles fairly early. ESAB, on the other hand, formed a separate treasury vehicle as late as in 1988, when the firm's turnover had increased substantially. Size is definitely an important factor when forming inwardly-bound treasury vehicles.

9.2.3.2 Foreign sales and complexity of foreign operations

One possible explanation of the formation of inwardly-directed treasury vehicles was the complexity of foreign operations which, according to U.S. experience, would require large firms with significant operations abroad to form special vehicles for handling the international issues. This decentralized stage, was preceded by a stage where the firms tried to centralize the treasury operations to HQ.

In the case companies, we also found regional units: Coordination Centres or finance companies. The activities of

these units are mostly inwardly-bound. These will be described below in relation to their outwardly-bound activities.

ESAB and Company X have complex production structures with production units in Sweden as well as abroad. The firms all have large internal flows, between production units and market companies, and occasionally also between the production units, where some units produce input for other units. In the case of Swedish Match, the internal flows have been fairly small between the different 'divisions', but the flow within the 'divisions' is fairly large and some have complex production flows. The internal production flows within the company's 'divisions' were handled by the 'divisions'. The firm still used a coordination centre to handle the financial flows.

We ran a probit model on the impact of the proportion of foreign sales over the turnover upon the formation of internal banks and finance companies. We also included size as explanatory variable. We found that the large firms with a large degree of foreign sales were more likely to form finance companies, and that large firms were more likely to form 'in-house banks' but less likely to have an internal bank if they have large percentage of foreign sales (Table 8.4).

For the survey, we have no data available measuring the complexity of the firms' production operations, but we have used the foreign sales as a proxy for complexity. We also ran a logit model with the number of treasury vehicles as dependent variable and the foreign sales as explanatory variable. This model gave some results, but it appears as if foreign turnover does not explain the number of treasury vehicles used, except that we obtained small negative statistically significant coefficients. As the measure of complexity used is fairly crude, we cannot draw far-reaching conclusions from these results.

It seems as if the firms which have substantial foreign sales are more prone to form finance companies and that less international firms are more likely to form an 'in-house bank'. Two of the studied firms have fairly complex internal flows, while one has less complex internal flows, mostly handled within the different 'divisions'. This firm nevertheless have formed treasury vehicles. Our proxy for complexity seems not to be explained by the foreign turnover of the firm.

It could be argued that the complexity inherent in a international production structure nowadays not requires the breaking up of the treasury function into treasury units with regional responsibilities. Modern tele-communications might enable Swedish firms to maintain a Stage II type of treasury organization, while still using treasury vehicles, but for regulatory or tax-reasons. A large degree of foreign sales would require the treasury unit, as reported below, to be in a tax-neutral environment. For firms with a large degree of its activities in Sweden an in-house bank might suffice. This might explain the outcome of our logit analysis.

9.2.3.3 Liquidity

It has been argued that the formation of 'in-house banks' is the result of the increasing liquidity of Swedish firms. This might be true if one considers Swedish firms to be the parent company. Their liquidity has increased, but we argue that measured on the group level this does not seem to be the cause of the formation of 'in-house banks' or other inwardly-bound treasury units. We run a probit model with the group's liquidity as explanatory variable and 'in-house bank', finance company or treasury units as dependent variables (Table 8.2, 8.3), and found that in no case did an increase in the group's liquidity increase the likelihood of the group forming such a unit. Instead the coefficients were negative, but not significant.

This is consistent with our findings in the case companies. The case studies also offer a possible explanation for the observations made by Andersson and Engvall (1984) and the remarks made by Hedlund and Hagström (1986) about the 'over'-liquidity of Swedish firms. The studied firms have all started working capital programs, initially for their European operations.

This was mainly a result of the high interest rates during the late seventies and early eighties. The purpose of these programs was to decrease the working capital in the firms, and the treasurers of the firms have tried to implement several programs. Interestingly enough, the programs seem either to have been triggered by financial crises, like in ESAB and Swedish Match, or a financial crises helped the programs to be implemented: Company X. This distress seemed to have helped the firm to implement their programs. This is in line with observations made when studying organizations in transition, see e.g. Pettigrew (1985) for a detailed description.

The working capital programs of the firms have concerned the entire group and by the centralization of cash management to the special units the firms liquidity increased. Simultaneously, the firms' arbitrage and position-taking activities have increased their need to invest in Swedish capital markets. These two factors in combination have probably led market participants in Sweden, at least initially, to view 'over'-liquidity of the firms as the explanation for the formation of special treasury units. On the group level, this has not been the case, at least for the period studied.

9.2.3.4 Case companies

From the case companies we initially observed a dual structure, where the central treasury department had conducted some activities, mainly related to the Swedish units, while the coordination centre managed the non-

Swedish units financial activities. This as a Swedish unit, being a 'valutainlänning', could not engage in the same broad range of exchange rate related transactions as the foreign subsidiaries. Furthermore, as discussed in chapter 5, the Group needs a tax neutral environment when it conducts basically internal transactions. The coordination centre borrows large amounts of money, at very low interest rates, on behalf of its industrial units. The subsidiaries must in many countries pay a withholding tax when it pays interest rates to a foreign subject, and this could also apply for the coordination centre unless it is localized a country which has special rules for paying withholding taxes on internal transactions. Without these special rules, it would be difficult to finance some subsidiaries with low cost money borrowed from the Euromarkets, as the firm incures extra expenses by paying double withholding taxes.

To localize the borrowing vehicle in such a country is therefore a question of finding the most tax-neutral localization. These countries have a set of double taxation treaties with countries in which the Swedish firms in general are active. They are also considered to be favourable from the perspective of Swedish companies. The choice of country is also effected by infrastructure and living conditions. Apparently, Belgium, the Netherlands and Switzerland are the most attractive areas for these kinds of activities for Swedish firms (Figure 8.2), as most of the foreign inwardly-bound treasury vehicles are localized in these countries.

In Sweden, we have seen how Company X's internal bank was transformed into a separate legal entity. This was done in order to facilitate the recruitment of financial officers offering them a well-defined profit responsibility and because the formation of a legally separate unit gives the legally separate treasury vehicle the same right as other financial companies to make depreciations in the value of their trading portfolio of securities when losses are expected. The firm moved the dealing activities to its

Coordination Centre when the exchange rate regulations allowed non-Swedish units to perform the hedging activities etc for Swedish units from abroad. The unstable tax situation for the financial service industry in Sweden was also said to have affected the decision⁷⁶.

9.2.3.5 Why at all?

More interesting is why these units are organized in the first place, as internal banks or as separate treasury vehicles. Size seems to explain their formation. Nevertheless, we argue that the size effect is spurious correlation associated with the type of companies which can borrow in the international markets.

The fundamental reason for the formation of these units is the responsibility over the firm's financial positions; the way the firms fund their activities and the way they handle internal currency issues.

The treasury has become detached from corporate headquarters. Information systems in combination with the shift of financial responsibility to the treasury vehicles have made these units disjointed within the organization.

Originally, a firms treasurer provided the head of an industrial unit with financing, and the treasurer was a staff position. The industrial units might have obtained help with arranging financing, but theirs was the financial responsibility. We in section 9.2. have described how the firms have started to centralize many of the activities to the treasury, occasionally using internal markets as the instrument of maintaining quasi-responsibility at the industrial level, for either exchange rate decisions or for the entire financial structure of the industrial units' balance sheets. As the decisions taken by the industrial

⁷⁶ Vanloads of Reuterscreens have also been observed travelling in the other direction, e.g. SKF centralized their finance function to Gothenburg in early 1990.

units at times might be sub-optimal, the treasury management has the right to alter them, now having the ultimate responsibility for some aspect of the firm's financial decisions. In order for the treasurer to measure the outcome of the deals created with the industrial firms and with the market, many of these treasury vehicles were formed as separate profit centres.

The treasury-function turned into a line-management function, a phenomenon in line with Hedlund's (1986) notion of a 'heterarchical' firm with different units, on the same hierarchical level as those they interact with. They interact in order to respond quickly and flexible to changes in the environment. Such a shift of responsibility creates tension, as the centralization of cash-flows must outweigh the disadvantages of frustrated line-managers, feeling stripped of responsibilities. The need for and gains of this flexibility nevertheless seem to outweigh the disadvantages in the case study firms.

The scope of the responsibility will vary. Some firms, like ESAB, give their treasury department limited responsibility, but others, as four firms in the survey organize their entire treasury department as a separate company, i.e. the treasury vehicles are created to handle the financial responsibility of the firms, and as we have seen in the previous part, often with a global treasury view, sometimes managing almost the entire financial portfolio of the group.

This view seem to be partly corroborated by the differences in the sources of funds that are observed between firms having respectively not having a finance company (see Table 8.10). There we found a statistically significant difference⁷⁷ in the mean value of money sourced from the Swedish banks: firms with finance companies had much less

⁷⁷ The fears that these results reflect mass significance is lessened by the case studies which seem to be in line with these significant differences.

money sourced from Swedish banks than those without. We also found a significant difference in the amount borrowed from the foreign money markets. This time the reverse is true; the firms with finance companies originate more of their funds from these markets than do firms without. The size effect would then rather be a function of only large firms becoming able to issue commercial papers abroad, and consequently have the requiring a treasury vehicle abroad.

Further indications of this are provided by the observations in the case studies of the elaborate systems constructed by the treasury units when trying to measure the profitability of the 'in-house banks' and financial units. Swedish Match's system was the most elaborate, while Company X uses a less complex system, but holds its foreign treasury vehicle responsible for their activities minus an interest for their equity. The Swedish treasury unit conducted their operations on commission basis on behalf of the other Swedish units. A responsibility is thus partially redistributed to the treasury, while the industrial units are primarily held responsible for their industrial and exchange rate related decisions.

The treasury of the case study companies would, in our view, not have been able to centralize these activities unless they had strong economic incentives. In Swedish Match the Treasurer's control over the industrial units' balance sheets was made possible by the of internal control system which was designed in order for the firm to be run as a conglomerate. It took Company X's treasurer about seven years before the industrial units lost the responsibility over their balance sheets structure. ESAB's group treasurer has not obtained this control yet and it is unclear if this is a goal of hers. We argue that besides those reasons stated above: know-how of currency markets and the need to centralize the borrowing to one unit - the treasury would not have been able to centralize these activities unless the treasurer had earned fairly substantial amounts of money on their financial

intermediary activities. These will be described in the following section.

We believe there has been an interaction between the development of the inwardly- and outwardly-bound financial activities, in the following respect; firms' working capital programs provided the treasury with some of the information needed to take a global treasury view. The profitability of these operations once they were centralized has probably made it easier to get the industrial units to provide the information simultaneously as the internal markets still made it possible for the industrial units to maintain responsibility of exchange rate issues.

The treasury's profits do not only emanate from cash management and cost efficient borrowing, they also emanate from intermediary activities in the financial markets. We will now turn our attention to what kind of external financial activities Swedish non-cooperative manufacturing firms' units have conducted.

9.3 Outwardly-bound financial intermediation activities

In our case companies, evidence of basically four types of financial intermediary activities which Swedish firms seem to conduct was found. We will discuss these four types of activities. We also know that Volvo and ABB act as providers of different kind of financial service: stock brokerage, portfolio management, etc, but as these firms did not participate in the case studies, we are unable to discuss any economies of scope existing between financial service and manufacturing activities. At the outset, we therefore are forced to conclude that we have not been able to pursue the research direction D6 in our work.

This chapter provides no repetition of the descriptive parts already reported in the previous chapter. As to the volumes of the different types of activities, they have been stated

above - as far as we have been able to determine them. Instead we will concentrate upon the assessment of the hypotheses H1-H3/H4 and possible explanations along the research directions D1-D5.

Hypothesis 1: Inter firm lending on the basis of asymmetric information.

We have, in the survey, seen that firms do lend money to other related firms, and conjectured that if this was based on asymmetric information, this should be done by credit officers with industrial experience from the company and/or the industry. We did not pick up any indications of this being the case in the survey, for suppliers. This for two reasons: first, most officers had experience from the financial industry. These findings correspond to our observations about the case study firms' credit officers; these were mostly recruited from the financial industry. Second, lending to suppliers was minimal, (see Fig. 8.5).

On the other hand, we do not want to reject our hypothesis as regards lending to customers, instead we, on the basis of the case studies. First, the volumes were larger and some leasing activities seemed also to be directed to customers. Second, on the basis of the case studies we suggest another way the asymmetric information is included in the firm's credit analysis. In Company X we observed how the firm used the stationing of its credit officers for big-ticket financing to give them access to customer information. The different officers were assigned to specific business areas, and they are responsible for the credit evaluation. Occasionally, the knowledge was so intimate that Company X did not have to perform a credit analysis in order to grant the credit. In ESAB, which also performs financing of 'big ticket items' the credit evaluation is performed by the central treasury unit. In order to create incentives for the industrial units to make a fair assessment of the credit risk, the units are required to keep any remaining credit risk.

ESAB only performs lending activities vis-à-vis counterparts in the Third World. As the firm generally lacks any major representation in these areas, the firm has no primary knowledge about the clients. The credit risk is therefore assessed and, if not sold off, remains with the treasury department. The local subsidiaries are allowed to give minor credits or short term credits. In those instances these units also keep the credit risk. Swedish Match was not involved in this kind of lending.

We can only suggest that the asymmetric information is drawn into the analysis of the firm, by giving the industrial units incentives to give correct information about prospective lenders. Once again responsibility is placed where information is placed in the organization and once again the managerial evaluation system provides then incentives. This is provided by letting the industrial units close to the customer to take the credit risk. The credit officers can also be placed close to the persons involved with the actual selling, as in Company X. This also seem to be supported by the observation that cutomers related lending and leasing are fairly decentralised activities (Table 8.7).

Hypothesis 2: The firms computer capacity might be used with the financial intermediary activities of the firm, giving the firms a competitive advantage vis-à-vis 'pure' financial intermediaries.

There is no evidence of this being the case in Sweden. Few firms answered this question in the survey: some of them used the same computer as the firm but many had their own computer capacity. We do not think that joint computer capacity constitutes a major advantage for Swedish firms when competing with 'pure' financial intermediaries. The scope of financial intermediation related to manufacturing firms in Sweden is different than that of many U.S firms. The latter are active in the asset backed securities industry, i.e. they

conduct customer financing in the mass markets, and refinance these issues mainly by selling rights to the proceeds of large pools of car loans. In order to calculate the bond holders' share of the cash flows and in order to keep track of payments made, a significant computer capacity is needed. In such instances, ample computer capacity that could be used for large batch processing at odd hours would constitute a major cost saving. In Sweden, such transactions are not conducted, but we know that Volvo North America has been involved in the issue of car receivables backed securities in the U.S. (Åkessons, 1988), but it is unlikely that Volvo's super computer, stationed in Gothenburg, is used for the handling of proceeds. On the basis of our results we conclude that computer capacity does not at present constitute a significant economy of joint production for Swedish firms offering financial services.

We will discuss hypotheses 3 and 4: arbitrage and trading are activities that the firms conduct based upon regulation induced distortions in the financial market. In this context we also discuss the research direction 3 - to identify areas where the firm could circumvent regulations segmenting national financial markets.

In chapter 5 we described how the Swedish market during the studied period was segmented from non Swedish financial markets. The segmentation was the result of the Swedish currency regulation which has had as its goal the prevention of Swedish portfolio investments abroad and foreign portfolio investments in Swedish securities. Consequently, Swedes have been forbidden to take positions in the exchange markets. Only trade-related flows could be hedged and it has been shown how Swedish firms have been able to use those hedge contingents they acquired from the Swedish Central Bank to hedge exposure created when the Swedish parent company trades with its non-Swedish group units. These units, in turn, could hedge the group's exposure. Therefore, the parent company is left with a hedge contingent which it can use for

arbitrage deals. The right to purchase hedge contracts has been used to borrow money in non-Swedish markets, and the firms have been able to lock in a covered interest rate spread between the foreign capital and the Swedish capital markets. All three case study firms engaged in this kind of activity. When we tried to add together the volumes for 1987 which were booked as interest rate arbitrage, it amounted to SEK 22.6 billion. This is the lowest possible figure, as the publication of these figures not is mandatory in Sweden, and we only know for certain the totals for 19 out of the 48 firms. On the other hand, we have information from the larger firms, and therefore believe that even if the amounts are larger, we have captured the magnitude of this arbitrage for our set of firms.

Furthermore, we know from the survey that firms engage in arbitrage activities (Table 8.11) and that many of them are involved in what they declare as regulation induced arbitrage. Besides the one mentioned above, one of the respondents to the survey commented that he had discounted tradable bills of exchange with the central banks of Western Germany and England at interest rates below market rates. When confronted with different types of arbitrage the group treasurer of Company X declared that he conducted this type of arbitrage as well as arbitrage within markets where interest rates are administered, and also arbitrage between national markets. From the descriptions above it is fairly obvious that only a manufacturing firm can conduct most of these activities. The most profitable of these activities according to the mean ranking of the firms answering the survey was the international arbitrage. Most firms -, 31 out of 34 - stated that they were engaged in this kind of activity.

We can safely conclude that Swedish firms conduct arbitrage between different national markets separated by segmentation, that a fair number of firms (16) conduct arbitrage within national markets separated by segmentation, and that Central

Banks occasionally seem to misprice the interest rates at which they discount eligible bills of exchange. Furthermore, the fourteen firms state that they are able to make arbitrage on markets which they view as unsegmented.

We can also conclude that firms are taking positions in the markets. Such activities are conducted by 32 of the 34 responding firms. We have no information about the size of these activities, nor are we able to state exactly on what basis these activities are conducted. All three case study firms, to a varying degree, took what they consider as positions in the financial markets. It seems clear that the profitability of these activities far exceeds those which the arbitrage activities generate. Swedish Match and Company X ranked arbitrage as the activity with contributed the least to the profitability of their treasury operations, while position-taking activities were ranked highest in the firms.

That the amounts gained could be considered to be substantial was demonstrated by Company X, which fairly consistently made about 10 per cent of total profits primarily from this kind of activity. One of the ideas pursued, on several markets, is to borrow money in different countries with low nominal interest rates - blending a currency cocktail with currencies with perceived negative covariance - and invest the money in high interest rate countries.

It is safe to conclude that these activities increase the integration of the Swedish financial markets with the international markets. The Treasurers reported that the margins attained from covered interest arbitrage had decreased. The minimum amount engaged in these activities, above MSEK 20 billion, is an significant amount in the Swedish market and its size also points in this direction.

Also the position-taking activities will increase the integration if the flows are directed to Sweden. Company X

conducts significant operations in this vein, and position taking activities will also contribute to the integration of the Swedish market into the international markets.

We cannot determine if the firms' position-taking activities are the result of a better ability to absorb risk, or whether firm's simply absorb risk on behalf of their owners. In chapter 6 'pricing to markets' was described. 'Pricing to markets' would mean that strategic interaction between competitors is possible and exists and that this interaction would influence the way the firms would pass-through to their customers the effect of a price change. Some empirical support for these models was brought forward, but the concept cannot be considered to be generally agreed upon.

We perceive it as a definite possibility that the firms have a 'natural' hedge created by the operational exposure, which enables them to take financial positions which are profitable. We have considered the conditions leading to this.

This might be true insofar as the case study firms have engaged in some studies of their economic exposure. On the other hand, the measures we encountered mainly incorporate transaction and translation exposure. Nevertheless, the discussed notion of a 'natural' hedge remains a theoretical possibility, still to be tested.

Another possibility is that the firms, during the period of the segmentation of Swedish capital markets from international markets, took financial risks since they perceived the expected gains as high and therefore were interested in carrying some foreign currency risk in their financial portfolios. We view ESAB's treasury as the least active in these kind of operations, but they still let the financial decisions be reviewed by the board of managers as described. Swedish Match and Company X, both fairly active, but in our opinion by far not the most active firms, both let

the representatives of the owners set the limits for the treasury operation's risk taking activities.

It should be noted that these two views not are mutually exclusive. The firms might both gain from any 'natural' hedge they have and take positions up to and above that warranted by a natural hedge. This is an issue which must be left unresolved and the two possible views are classified as possible explanations of Swedish firms' position-taking activities. It is not possible to choose between the alternatives unless we use a reductionist criterium, stating that the simpler explanation is to be preferred.

One could claim that firms, at least are acting in the manner Kane (1984) outlined when circumventing regulation and also that in this case, there is some evidence the firms' financial intermediation activities being based on segmentation and regulations as Gurley and Shaw (1960) conjectured about normal financial intermediaries. This also seems to support Walters' (1984) view of the international banking market as being segmented by regulation. This would be the reductionistic argument, but if firms maintain to operate financial intermediaries after the regulations are abolished, something else is needed to explain why firms conduct these activities.

D1: Economies of joint production in the firms' financial intermediation activities

We have found several possible economies of joint production in the lending and leasing activities of Swedish firms which we will discuss below. Besides the asymmetric information argument we have found some economies of joint production in the lending activities.

Economies of shared distribution. ESAB leased equipment to some of its customers without taking any other interest in this than providing credit to its clients. We believe that the advantages are distributed between the three parties in

the following way: the customer lowers his transaction cost by not having to contact a separate outlet to obtain financing. ESAB's customers will therefore perceive the price including financing as lower and are more likely to purchase products, all other things being equal. For the leasing company, having ESAB providing the marketing will be a cost efficient distribution channel.

Another advantage, connected with customer-related leasing is the possibility to keep control over the secondary market, when the firm wants to sell expensive equipment with profit sharing agreements or high costs. A further advantage for customer-related lending or leasing is that the firm might be able to resell any equipment which is returned: probably at lower cost than a normal leasing company would be able to.

Further advantages were identified in the dealing activities, where the international network of the firms are extensive. The firms generate exotic currencies which they can use in their dealing activities. If they find an arbitrage opportunity or have a view on the future development of an exchange rate involving an exotic currency, they have on part of the deal established without having to pay a margin to obtain the currency.

Another advantage is the information provided about the financial and general business situation in those countries in which the companies are active. This information is provided on a regular basis in the companies, and has enabled the firms to take profitable positions in the markets. Here the firms should have a cost advantage as only the world's largest banks have networks which are as widespread as those of Company X and Swedish Match. Regular banks will probably have to pay substantial sums to obtain the same information in a timely manner.

We observed an advantage which has more to do with why a function is internalized: Company X unit for 'big ticket

item' financing, structured the financing and was therefore as 'in-house investment banker' given the opportunity to participate in every tender Company X makes. Their hit ratio would therefore be higher or equal to that of outside investment banks which would therefore be less cost-efficient. Furthermore, the group treasurer will always have a check upon the quality of the units work as he can compare the suggested financing with that of other tenders.

The information advantage in analyzing local financial markets; the arbitrage opportunities and the cash flows in exotic currencies, could be labeled 'international network advantages' of MNCs (Kogut, 1983). MNCs with an established network have several advantages over local firms. Those we have mentioned can be added to the list of such advantages.

D2: do the international units lend money to unrelated agents abroad?

It had been argued that lack of lending capital in the international markets would create situations where new intermediator would be needed. We have in our case company not found any activities indicating that this would be the case. Furthermore, from the survey we have seen that the non-Swedish treasury vehicles are mostly inwardly-directed or provide sales financing and coordination centres are forbidden to interact with external parties. We therefore believe that lack of capital is not an issue motivating the formation of non-Swedish treasury vehicles.

D5: Taxes and leasing

We have seen that there have been tax advantages in Sweden that are connected to individual firms, the possibility to release blocked funds at the Central Bank or the possibility to deduct parts of the VAT if the firm conducts the leasing activities themselves. But most other tax advantages could be obtained if 'pure' financial units arrange the deals and the firm only invests the money needed in the deals. To obtain these advantages the firms do not need to have a leasing

company of their own. The internalization of this activity at Company X therefore was more an act of forward integration, as the margins earned in the industry were regarded as large. The advantages which the leasing companies build their existence upon are therefore probably those of economies of joint production, such as those mentioned above.

9.4 Reliability and Validity of Results

Hypothesis 1 is not settled satisfactorily - a new possible avenue of how the asymmetric information is reached by the credit officer has been found. Hypothesis 2 has been dismissed, and H3/H4 have been partially corroborated - financial risk is borne by the firm - but we cannot determine whether firms have an operational exposure offsetting the financial risk. Most other results are difficult to generalize.

As we discussed initially, this area is not well researched, especially on the company basis. We obtained our results from a clinical approach. Such results are according to Jensen et. al. (1989) needed in order to obtain insights into the workings of the actors in the financial markets.

Our general approach when building explanations, has been to take information from different sources, if possible, independent sources. This has been done on two levels and it is important to distinguish between the reasons for doing so.

In the case studies we have reacted to Miles (1979) criticisms that the case study methodology does 'not transcend storytelling' by building in as many independent data points in the studies as possible, in line with Yin (1981). This includes the study of internal documents and interviews with several officers at different levels and in different positions. If public material about the case study companies was encountered it has also been used. These steps have been undertaken with the aim of obtaining an internal

validation of our findings in the case companies. We believe that this has been successful for our case studies.

As our aim has been to 'build explanation' and not to falsify any theories using a 'one theory case study approach' we do not consider that the creation of research directions has any methodological implications. Through the creation of these research directions we are able to be better focused in our efforts to build explanations where we think we have reason to do so. The limitation, of course, is that we might not have turned the right stones, but that must be weighted against the usual criticism of case studies. In order to assure that one turns the right stone, all stone has to be turned around, and undertaking not possible in our case. Consequently we rejected the notion of one case study falsification for this study.

The generalizability of the results is as previously discussed lowered by our selection of well reputed firms. These firms can be considered as 'ideal' companies and some possible reasons for forming treasury units or conducting financial intermediary activities might have gone undected.

Unfortunately, a contrasting case study could not be conducted, which would had provided a further check upon the conclusions drawn out of the cases.

We think that we struck a reasonable balance between the falsification problem and a to limited scope of the analysis by including all reasonable research directions.

In Part C, the generalizability of the results from the survey was discussed. The public information we gathered mainly consists of audited material filed with different government agencies or was produced by government agencies.

As to the strength of the results of the total study, a few remarks should be made. We have used data from three

different sources: case studies, the survey and public information. Triangulation of data from different sources is believed to have strengthened the results, but it does not have the power of a formal test. It is better to consider observations corroborating each other as only indicating areas where formal modeling might be more worthwhile pursuing than those areas where the results of the different studies are contradictory.

9.5 Areas for future research

Some areas for future studies need to be outlined:

- How should the firms organize the interaction between treasury and industrial units? How do the firms integrate the treasury activities? A further question not touched upon is the interaction between the treasury and the financial department. Both units must use prognoses, one to coordinate the activities of the firm, the other to obtain information about the future cash flows.
- The question of economies of scope between manufacturing and 'pure' financial services remains to be studied: why are they conducted? Are they linked with the industrial operations or are they a way to internalize the firm's own trading activities?
- Studies of the effects on customers' purchasing decisions when credit is offered with the sales of a product might prove worthwhile to pursue.
- Given the discussion of real financial linkages, how are they to be integrated into the financial decisions of the firm? These issues seem primarily to be linked not only to the firm's hedging decision, but also to the questions of the firm's financial structure of its external debt. In what currencies should the firm borrow and what kind of interest rate risk should the firm carry, given the nature of their operations?
- Could the economic exposure of the firm be linked to the pricing of the firm's shares, or do markets react to the

reported profits' exposure to macroeconomic uncertainty priced, as the firms choice of exposure measure indicate.

Post Scriptum

No mention has been made so far of the development of manufacturing related financial intermediation in Sweden. In my view, the future could follow one of two routes.

Either the development will be that of the Augsburg family of miners and manufacturers Fugger 'von der Lillie' which during the 16th Century were the prime financiers in Central Europe. Their conservative lending policies in combinations with a steady cash flow from their mining, minting and collection of papal letters of indulgence business kept the family in solid financial shape for several generations.

The other path would be that of the Fuggers 'vom Reh', another line of the Augsburg family. Through extensive unsecured lending to a sovereign debtor the family quickly got into financial distress and oblivion.

As long as credit is given in a prudent manner, the observed phenomenon can be expected to prevail. I see a natural link between finance and manufacture. The example of the U.S. firms (see Table 3.2 above), shows how the financial activities over time have become more and more sophisticated. See Economist (7-13 April 1990, pp. 32-40 International Banking Survey) for a discussion of recent developments.

A similar development, among the larger Swedish firms can be expected. More and more activities will be internalized, and a broader product range offered. The banking community would need to offer only its core expertise to this customer segment: payment service as well as financial advice and engineering.

Source: Freiherr von Pölnitz, Götz (1960), *Die Fugger*, 2nd ed. Frankfurt am Main: Verlag Heinrich Scheffler.

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Swedish Match, 1981-87
Company X 1980-87

Annual Reports, 1987-88, of the survey firms.
Annual Reports, selected finance companies.

Appendices

Table of Contents

- Appendix 5.1 Questions to the Treasurer
- Appendix 5.2 Interviewed Managers

- Appendix 7.1 Officers interviewed in ESAB for the operational exposure study.
- Appendix 7.2 Questions to the Controller
- Appendix 7.3 Questions to the Market Manager
- Appendix 7.4 Questions to the German market manager
- Appendix 7.5 ESAB's Internationalization
- Appendix 7.6 The shipbuilding industry
- Appendix 7.7 ESAB's main competitors
- Appendix 7.8 Production facilities 1979-1986, Div C
- Appendix 7.9 Production facilities 1979-1986, Div H
- Appendix 7.10 Production facilities 1979-1986, Div S
- Appendix 7.11 ESAB's sales over geographical regions, 1979-1986
- Appendix 7.12 Material used when compiling the case

- Appendix 8.1 List of companies to which the survey was mailed
- Appendix 8.2 Survey (covering letter, definitions, part 1-3)



Frågor till finanschef

1. Personalia
2. Historik
 - 2.1 Finansavdelningens utveckling funktionsmässigt sedan 1977?
 - 2.2 Finansavdelningens personal
 - Rekrytering på grundval av vilka kvalifikationer?
 - Koppling till den operationella verksamheten?
 - Kreditutvärdering?
 - 2.3 Vilka överväganden har legat bakom expansionen av finansavdelningen?
3. Dagens finansavdelning?
 - 3.1 Vilka är avdelningens övergripande mål?
 - 3.2 Vem bestämmer företagets finansiella policy?
 - Limiter?
 - Valutasammansättning på upplåning?
 - 3.3 Hur är kopplingen till den operationella policyn?
4. Varför eget finansbolag?
 - Vilka aktiviteter?
 - Vilka kundtyper?
 - Vilka fördelar med finansbolag kontra intern bank?
 - Riskabsorberande/riskreducerande som enhet?
 - Sett ur koncernperspektiv?
5. Vilken traditionell utlåningsverksamhet har ni vid sidan om enheterna i finansbolaget?
6. Kommentera möjligheterna att genom en "global" finansförvaltning
 - minimera skattebetalningen för koncernen?
 - reducera koncernens exponering för fluktuationer i finansiella variabler?
 - tjäna pengar på riskfritt arbitrage?
 - minska koncernens cost of funding?

Appendix 5.2
Interviews

Company	Person	Title	Date
ESAB	Karin Kronstam	Group Treasurer	11/4/1986 1/8/1987 11/30/1988 2/28/1989
	Bengt Alberts	Ass. Treasurer	16/6/1987 11/30/1988 2/28/1989
	Åsa Widerström	Cash Mgmt & Controll Finance Comp. Leasing	16/6/1987 2/27/1989
	Wanda Holmberg	Control Fin. Dep.	1/10/1990
	Matthias Zucketto	Market Manager ESAB GmbH, Solingen	3/25/1987
	Magnus Lind	Treasurer ESAB AB	7/13/1990
Swedish Match	Peo Lindholm	CFO	7/12/1987
	Karl-Olof Ohlson	Head of Finance Comp	2/4/1987
	Claes-Johan Geijer	Treasurer	
	Lars Hägerstrand	Cash Management, Tarkett AB	7/17/1987
	Gerhard Durre	Financial Head, West German Operations	5/10/1988
	Raoul C. Öberg	Business Control	6/10/1987
Company X		Head of Business Area Finance	Interview Interview
		Head VEHICLE 3	Interview
		Head VEHICLE 1 AB	Interview Interview
		Head UNIT 2	Interview
		Business Area Finance	Interview

Appendix 7.1

List of Interviewed Managers¹

Bengt Alberts, Treasurer ESAB AB, 6/16/1987 and 2/28/1989, Gothenburg;

Anders Backman, market manager 'Consumables' Division, 3/9/1987, Gothenburg;

Sten Brinde, Purchasing Department 'Standard Welding Machines' Sub-Division, 3/11/1987, Laxå;

Lars-Göran Eriksson, Managing Director ESAB Engineering AB and with area responsibility at ESAB International AB, 3/4/1987, Gothenburg;

Wanda Holmberg, Treasure Dept., 3/10/1989, telephoned;

Dr. Helmut Kessler, kaufmännischer Leiter ESAB-Hancock GmbH (Division Cutting), 4/3/1987. Karben, Western Germany;

Lars-Inge Larsson, Controller 'Consumables' Division, 3/9/1987 and 5/11/1987, Gothenburg and telephoned;

Magnus Lind, Treasurer ESAB AB, 7/13/1990, Gothenburg;

Bertil Olhus, Controller 'Automation' Sub-Division, 6/22/1988, telephoned;

Christer Palm, General Manager 'Automation' Sub-Division, 3/2/1987, Laxå;

Ingemar Schön, Purchasing Department 'Automation' Sub-Division, 3/3/1987, Laxå;

Morten Smedsta, Group Purchasing Manager, 5/11/1987, Gothenburg;

Anders Träff, General Manager 'Consumables' Division, 3/9/1987, Gothenburg;

Åsa Widerström, Cash Management, 5/10/1990, telephoned;

Ingemar Widestig, General Manager 'Standard Welding Machines' Sub-Division, 3/12/1987, Laxå;

Dr. Matthias Zucketto, Market Manager, ESAB GmbH, 3/25/1987, Solingen/Ohligs, Western Germany.

¹ Positions refer to positions held at the time of the interview.

INTERVJUGUIDE: CONTOLLER AV AFFÄRSOMRÅDET

Definitioner

- Med input menas varor och tjänster som använts i produktionen.
- Med internt levererade input menas de varor och tjänster som levereras från andra enheter till den enhet som data redovisas för.
- (Frågorna II, III, IV) Om möjligt vill jag ha data för tillverkningsenheter, om detta inte finns, för olika länder, och i sista hand per produkt.

I. Tillverkningens organisation

- a) I vilka länder tillverkas produkten/produkterna?
- b) Är intern redovisningsdata tillgänglig per land, produkt eller tillverkningsenhet?

II. Tillverkningens kostnadsstruktur i olika valutor för varje tillverkningsenhet, land eller produkt

- a) Vad utgör den totala kostnaden för produktionen?
- b) Ange hur betoningen av input fördelar sig mellan olika valutor, inklusive SEK.
- c) Hur mycket av den totala kostnaden för produktionen utgörs av betoning för internt levererade input?
- d) Ange hur betoningen av internt levererade input fördelar sig mellan olika valutor inklusive SEK.

III. Tillverkningens intäktsstruktur i olika valutor för varje tillverkningsenhet, land eller produkt

- a) Vad utgör den totala intäkten för produktionen?
- b) Ange hur faktureringen av försäljningen fördelar sig mellan olika valutor inklusive SEK.
- c) Hur mycket av den totala faktureringen för produktionen utgörs av internfakturering?
- d) Ange hur internfakturereringen fördelar sig mellan olika valutor inklusive SEK.

IV. I de fall när data finns per tillverkningsenhet:⁴¹⁷

- a) Ange kostnaden för affärsområdet, fördelat på olika valutor, för de enheter som inte bedriver tillverkning utan istället t.ex. administration, fou och/eiler marknadsföring.

V. Produktionskostnadernas valutakänslighet

- a) Vilken är Din bedömning av andelen av kostnaderna som kan betalas i annan valuta än idag? Vilka är valutorna man kan byta ifrån och vilka valutor kan man byta till?
- b) Kan man skifta produktion mellan olika tillverkningsenheter?

VI. Faktureringsens valutakänslighet

- a) Vilken är Din bedömning av andelen av den externa försäljningen som kan faktureras i andra valutor än den i vilken den faktureras idag? Vilka är valutorna man kan byta ifrån och vilka valutor kan man byta till?
- b) Vilken är Din bedömning av kundernas priskänslighet? Finns det någon skillnad mellan olika marknader och i så fall varför?
- c) Vilken är Din bedömning av försäljningens konjunkturberoende? Finns det någon skillnad mellan olika marknader?

VII. Förädlingsvärdet i de olika enneterna

- a) Finns data tillgängliga för fördelning mellan arbetskraft och råvaror & halvfabrikat?

VIII. Konkurrenternas kostnadsstruktur

- a) Finns det studier gjorda på konkurrenternas valutakänslighet i produktionen? Om så är fallet, kan jag få tillgång till dem?

INTERVJUGUIDE: MARKNADSANSVARIG PÅ AFFÄRSOMRÅDET

Syftet med intervjun är att försöka fastställa vilka möjligheter Swedish Match har att höja respektive sänka priset på olika marknader som svar på förändringar i växelkurser eller i ränteläget.

I. Världsomspännande konkurrenter

- a) Finns det inom affärsområdet någon eller några konkurrenter som man möter på flera marknader?
- b) Om så är fallet, koordinerar de världsomspännande konkurrenterna sitt beteende över flera marknader eller tycks de olika försäljningsområden agera självständigt?
- c) Tar ert affärsområde i sitt marknadsagerande hänsyn till eventuella världsomspännande konkurrenter, i så fall på vilket sätt?

II. Konkurrenssituationen på de lokala marknaderna

(För den svenska + de fyra största marknaderna.)

- a) Vilka är de största konkurrenternas nationalitet, och var ligger deras tillverkning?
- b) Vad är Din bedömning av de viktigaste konkurrenternas reaktion på en prisnöjning respektive en prissänkning?

III. Kundernas priskänslighet

(För samma marknader som i II.)

- a) Har olika kundgrupper olika priskänslighet, och i så fall vilka och hur förhåller sig försäljningen mellan dessa kundgrupper?
- b) Kan Du för de olika kundgrupperna ge Din bedömning av hur priskänsliga de är på skalan:
 - mycket priskänsliga; faktureringen minskar först vid prisökningar på mer än 2%
 - relativt priskänsliga; faktureringen minskar först vid prisökningar på mer än 5%
 - relativt priskänsliga; faktureringen minskar först vid prisökningar på mer än 8%
 - mycket priskänsliga; faktureringen minskar först vid prisökningar på mer än 10%.

IV. Faktureringsens räntekänslighet

(För samma marknader som i II.)

- a) Har olika kundgrupper olika benägenhet att köpa Er produkt om ränteläget höjs?
- b) Kan Du för de olika kundgrupperna ge Din bedömning av hur mycket faktureringen minskar om räntan ökar med:

2%
4%
6%

- c) Kan Du för de olika kundgrupperna ge Din bedömning av hur mycket faktureringen skulle öka om räntan minskar med:

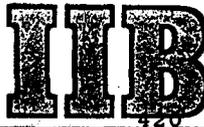
2%
4%
6%

V. Tillgänglig data

(För samma marknader som i II.)

Finns det:

- data om storleken på faktureringen över de senaste 10 åren?
- uppdelat på olika kundgrupper?
- uppgifter om konkurrenternas valutakurskänslighet?



STOCKHOLM SCHOOL OF ECONOMICS
Institute of International Business

Stockholm, den 13. März 1987

An
Herrn Dr. Zucchetto
ESAB GmbH
Postfach 100763
D-5650 Solingen 1
Västtyskland

Interview am 25. März d. J.

Sehr geehrter Herr Dr. Zucchetto!

Zurückkommend auf unser Telephonat, möchte ich, wie versprochen, Sie über den Zweck und die Fragestellung des Interviews informieren.

Meine Doktorarbeit behandelt die Finanzverwaltung grösserer schwedischer herstellender Firmen und besonders die Verbindung zwischen der Herstellung von Gütern und die finanziellen Transaktionen des Unternehmens. Deswegen messe ich, in Zusammenarbeit mit Karin Kronstam, ESABs Sensibilität auf Konjunkturschwankungen und Devisenfluktuationen. Diese Arbeit habe ich hauptsächlich in Schweden betrieben, aber ich werde auch erlesene Töchtergesellschaften im Ausland über diese Thematik befragen.

Konkret möchte ich gerne Ihre Meinung über folgendes wissen:

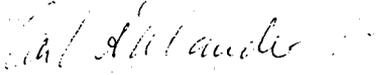
- a) Die Preissensibilität des deutschen Marktes?
- b) Die Preissensibilität der Kunden, wenn Sie zwischen einer Lieferung ESABs und einer Lieferung eines Konkurrenzunternehmens wählen kann?
- c) Welche Auswirkungen haben Konjunkturschwankungen auf das Umsatzvolumen ESABs?
- d) Wie beeinflussen Wechselkursschwankungen (SEK/DEM) die Preispolitik Ihrer Konkurrenzanbieter?
- e) Wie sieht die Kostenstruktur der Konkurrenzunternehmen aus?

IIB

421

Hoffentlich geben die Fragen Ihnen ein Bild von meine
Problemstellung, und ich freue mich dass, sie mir gelegenheit
geben Sie am 25. März zu sehen.

Mit freundlichem Gruss



Karl Ahlander

ESAB's internationalization

- 1912 Foundation of Anglo-Swedish Electric Welding Co. Ltd
- 1914 Foundation of Belgian-Swedish Electric Welding Co. Ltd
- 1921 Foundation of the Kjellberg Elektroden und maschinen GmbH, West Germany
- 1932 Foundation of ESAB, Spain
ESAB, Belgium
Kjellberg Elektroden und Maschinen GmbH, Prag
- 1933 Foundation of ESAB, England
ESAB, Denmark
- 1934 Foundation of ESAB, Holland
ESAB, Italy
- 1938 Foundation of ESAB, Norway
- 1940 Foundation of ESAB Welding Corporation, USA (closed 1962)
- 1943 Foundation of ESAB, Finland
- 1947 Foundation of Kjellberg-Eberle GmbH, West Germany (renamned ESAB-KEBE 1975)
- 1950 Foundation of ESAB, France
- 1953 Foundation of ESAB, Brazil
- 1956 Foundation of ESAB, Austria
- 1958 Foundation of Maquinas ESAB Ltda, Brazil
ESAB Arc Rods Ltd, Canada (closed 1966)
- 1972 Foundation of ESAB Inc., USA
Protea-ESAB Holdings (Pty) Ltd, South Africa (sold 1979)
ETARC S A, France, a joint venture between ESAB and CEM, which is taken over by ESAB in 1977.
- 1973 Foundation of ESAB S A, Algeria, closed 1978;
ESAB Technical Centre in Belgium
Acquisition of 26% of the shares in Werner Eichholzer AG, Switzerland
- 1974 Foundation of ESAB-Ekman Welding Pte. Ltd, Singapore;
ESAB-Iran Co., Iran;
ESAB-Romar Portugal;

423
ESAB Manufacturing Inc. USA;
Chemetron-ESAB Europa N V, Belgien (closed
1978);
ESAB Maquinas e Equipamentos para Solda,
Brazil;
FEMSA, Italy, owned to 70% by ESAB.

1975 Foundation of ESAB Australia Pty Ltd, Australia

1976 Acquired TEHAC GmbH, West Germany (sold 1979) operations
transferred to Solingen 1977;
Majority holding in Autogenwerk Rhöna;
41% holding in Heath Engineering Co, USA;
majority holding in Masing-Kirkhof GmbH;
Ekmans shares in ESAB-Ekman Singapore and the
company was renamed ESAB Singapore Pte Ltd.

1977 Foundation of ESAB-KEBE Ersatzteile GmbH, Germany;
Sarclad International Ltd, England
Increased shareholding in Heath Engineering Co
to a 54% stake.
Production started in new electrode factory in
Milan.

1978 Kjellberg-ESAB GmbH, Solingen and ESAB-KEBE GmbH Karben
are merged to ESAB GmbH.
ESAB takes full control in Heath Engineering Co.

1980 Acquires 50% of shares in ESAB Iberica S.A.

1981 Acquires 40% of Industrias SIGMA S A, Mexico
Varios Fabrieken B V, Netherlands;
Hancock GmbH (gas-cutting) from BOC. Renamed
it to ESAB-Hancock GmbH

1982 Acquires a further 25% of ESAB Iberica S.A., Spain;
the british gas-cutting division from BOC,
renamed it ESAB-Hancock Cutting Machines Ltd;
agrees with Guest, Keen and Nettlewoods (GKN)
to take over their welding Division with
activities in Great Britain, Western Germany,
France, Holland, Belgium and Switzerland. The
agreement included the brands Arcos, Lincoln
and Brinal.
Founded ESAB Middle East, Dubai, United Arab Emirat.

1983 Acquires 75% of the shares in Werner Eichholzer AG,
Switzerland;
BOC's welding division with the brands Murex
and Saffire. Murex Welding Products Ltd was
founded. BOC keeps its welding operations in
the U.S, South Africa and Australia. Turnover
is approx. MSEK 400 annually off which MSEK 100
is exported, primarily to Commonwealth
countries. Production is localised to Waltham
Cross, Hertfordshire, England.

1984 Acquires the remaining 49% in of Autogenwerk Rhöna GmbH,
West Germany. (gas welding equipment, sold in

1986);
 majority holding in Grupo Sigma Alfa, Mexico;
 Armco's welding division in Brazil. One
 factory is closed down and production is
 centralized to Belo Horizonte;
 Signs a letter of intent to purchase Philip's
 European welding business (ESAB takes control
 of operations in March 1985) In ESAB, the units
 are called Filarc;
 a share in a electrode factory in Indonesia;
 BOC's Arco welding operations in the U.S.
 which adds MSEK 150 of sales, a factory in
 Chicago and 300 distributors in the U.S.

Establishes a welding machine factory for Brazil;
 Mechanised Welding Centres (MWC) in Italy
 Chicago and Detroit.

Closes electrode factory in Gillingham, Kent, Great
 Britain;
 Sweden;
 Mexico;
 wire factories in Laxå, Sweden;
 Helsinki, Finland.

Rationalizes and concentrates operations in France,
 operations are localized at Pontoise,
 France;
 likewise, operations in Italy is
 concentrated to Mesero.

1985 The acquisition of Philips' European welding business
 adds another MSEK 390 to sales. Filarc units are set up
 in countries where Philips had operations: England,
 France, Holland (head office and R&D department), Spain
 and West Germany.

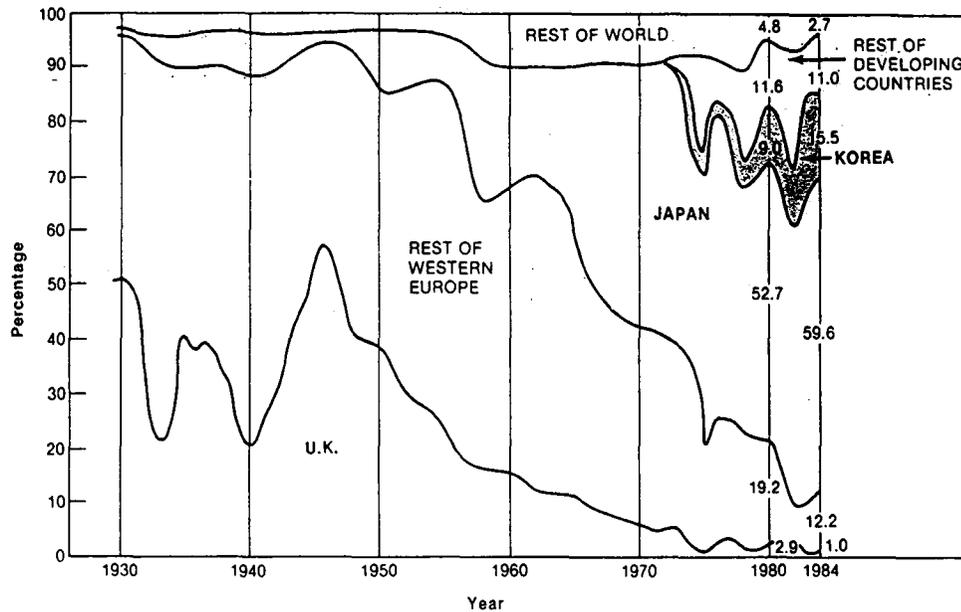
The electrode factories in Holland and Scotland were
 closed. Production from the joint venture in France has
 been routed to other factories.

Major investments were done in the English factory in
 order to increase capacity to produce pipewire.

1986 The gas welding operations were transferred to GCE Gas
 Control Equipment AB, a joint venture with AGA AB,
 Sweden.

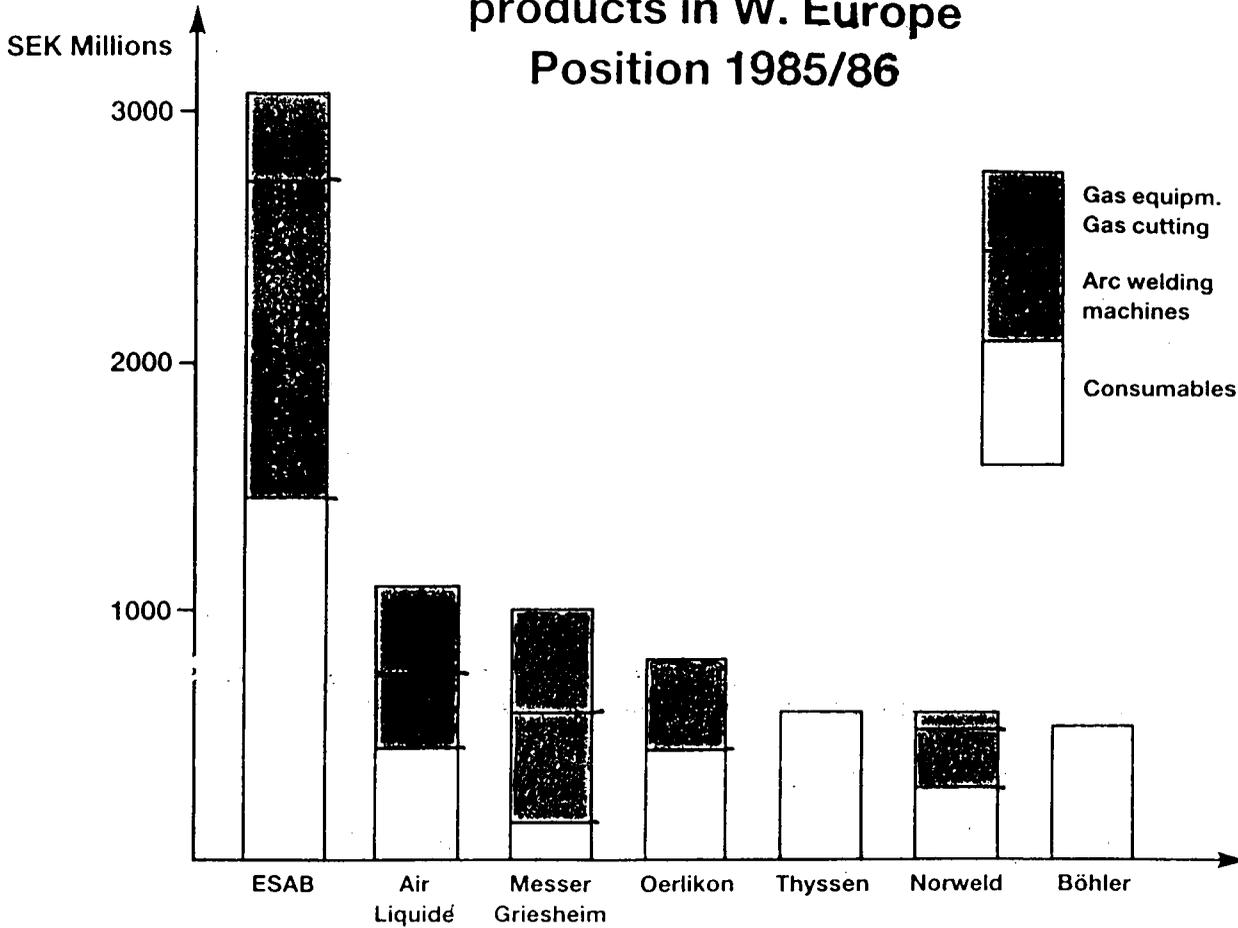
The factories producing covered electrodes in Finland
 and Portugal were closed during 1986, and it was
 decided that the factory in Kärberga should be closed
 during 1987.

The units in France were further restructured during
 1986.



SOURCE: *Shipbuilding Data Bank*, The Korean Shipbuilders' Association, Seoul, 1985, 84-85.

Companies with largest sales of welding and cutting products in W. Europe Position 1985/86



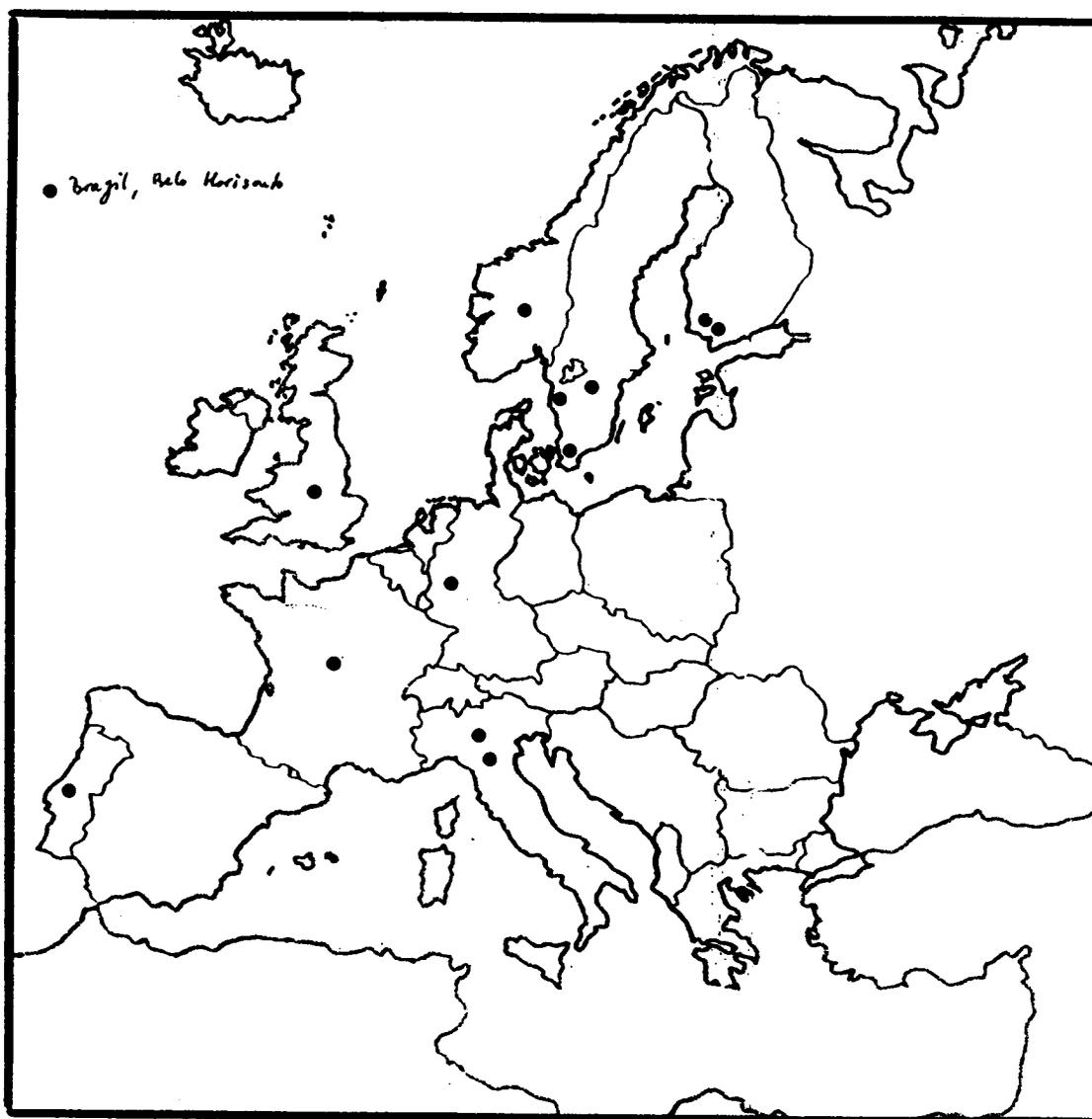
Appendix 7.7
426



FACTORIES

DIVISION C 1979



FACTORIES
DIVISION C 1980

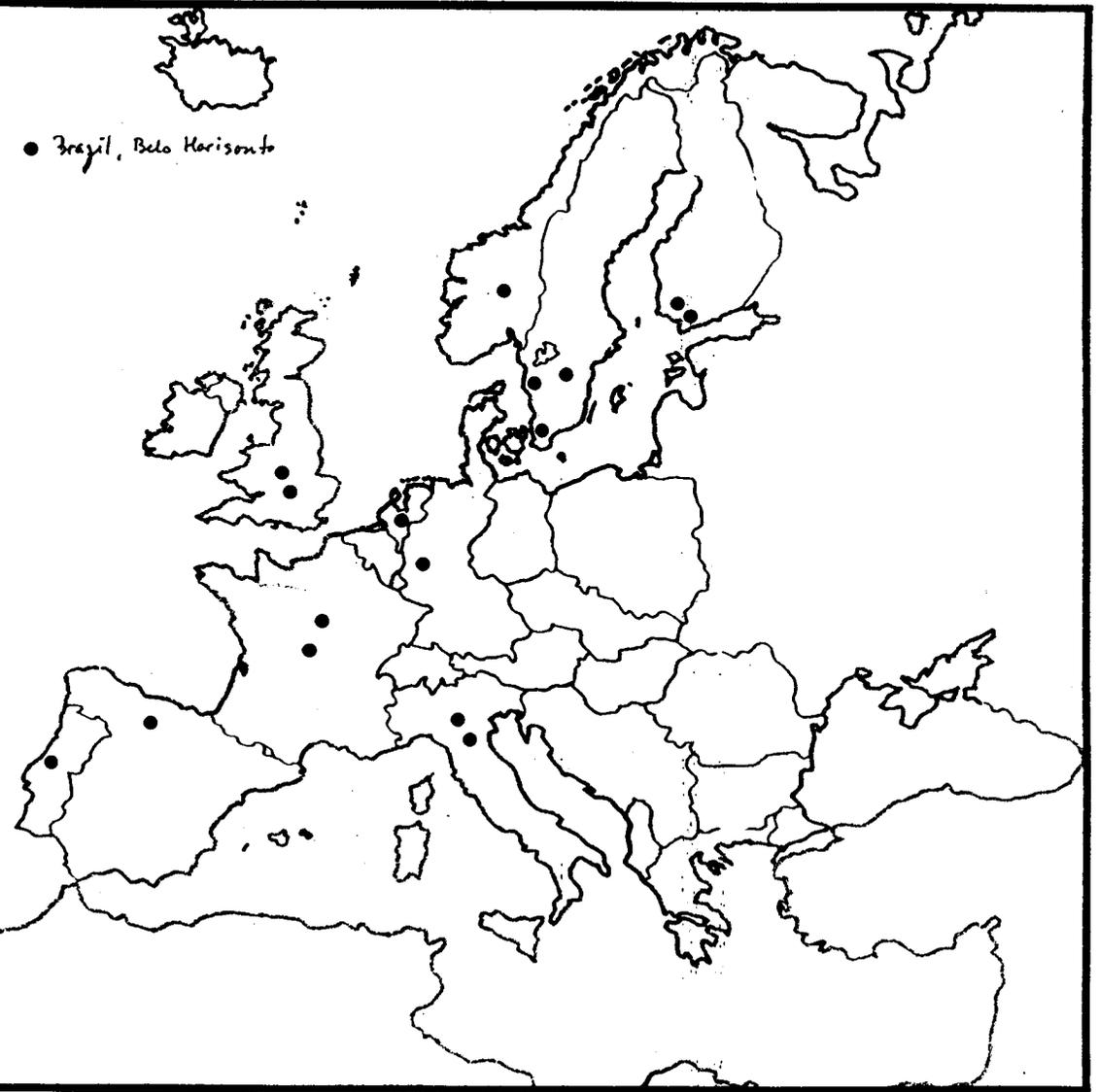
FACTORIES
DIVISION C 1981



FACTORIES
DIVISION C 1982



FACTORIES
DIVISION C 1983



FACTORIES
DIVISION C 1984



FACTORIES
DIVISION C 1985

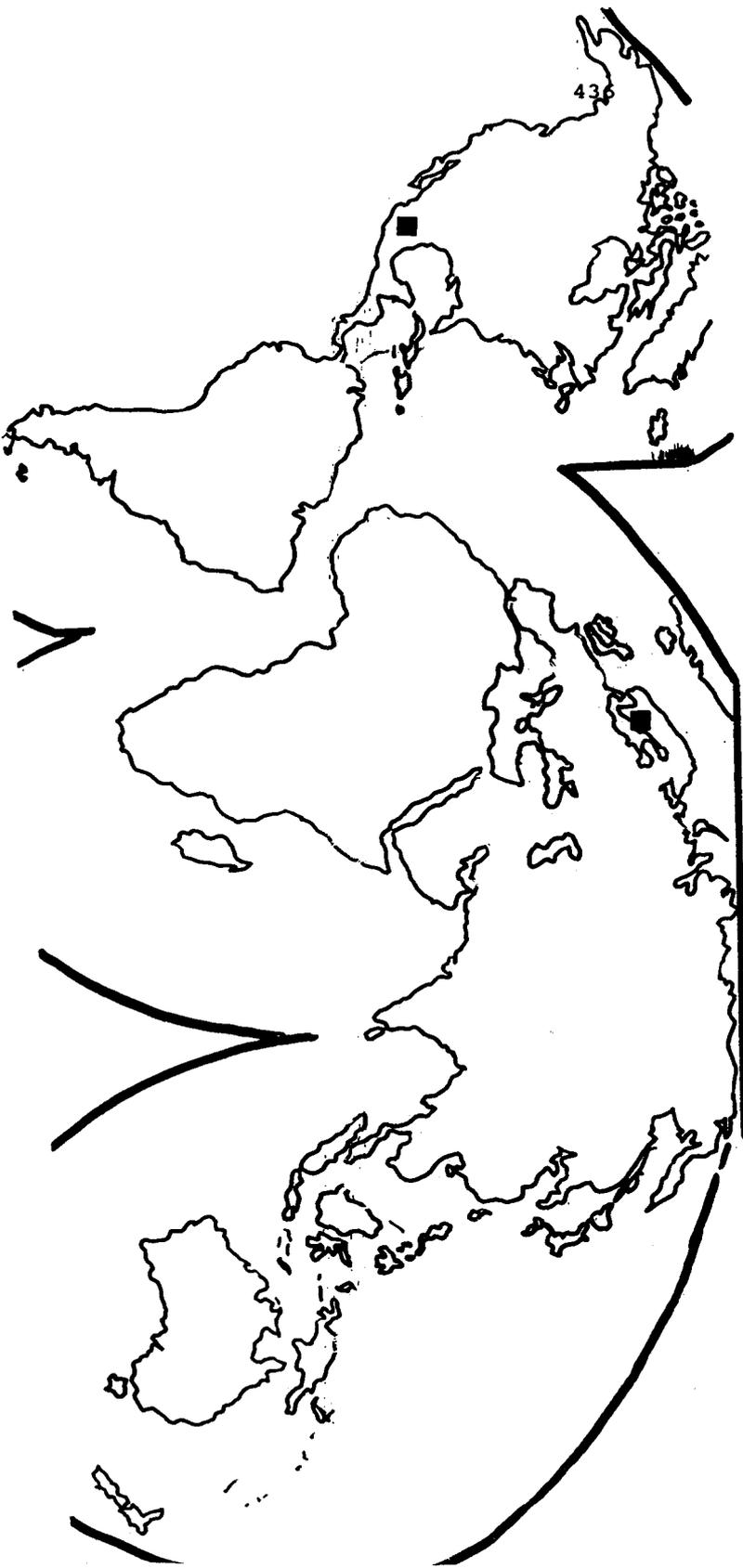




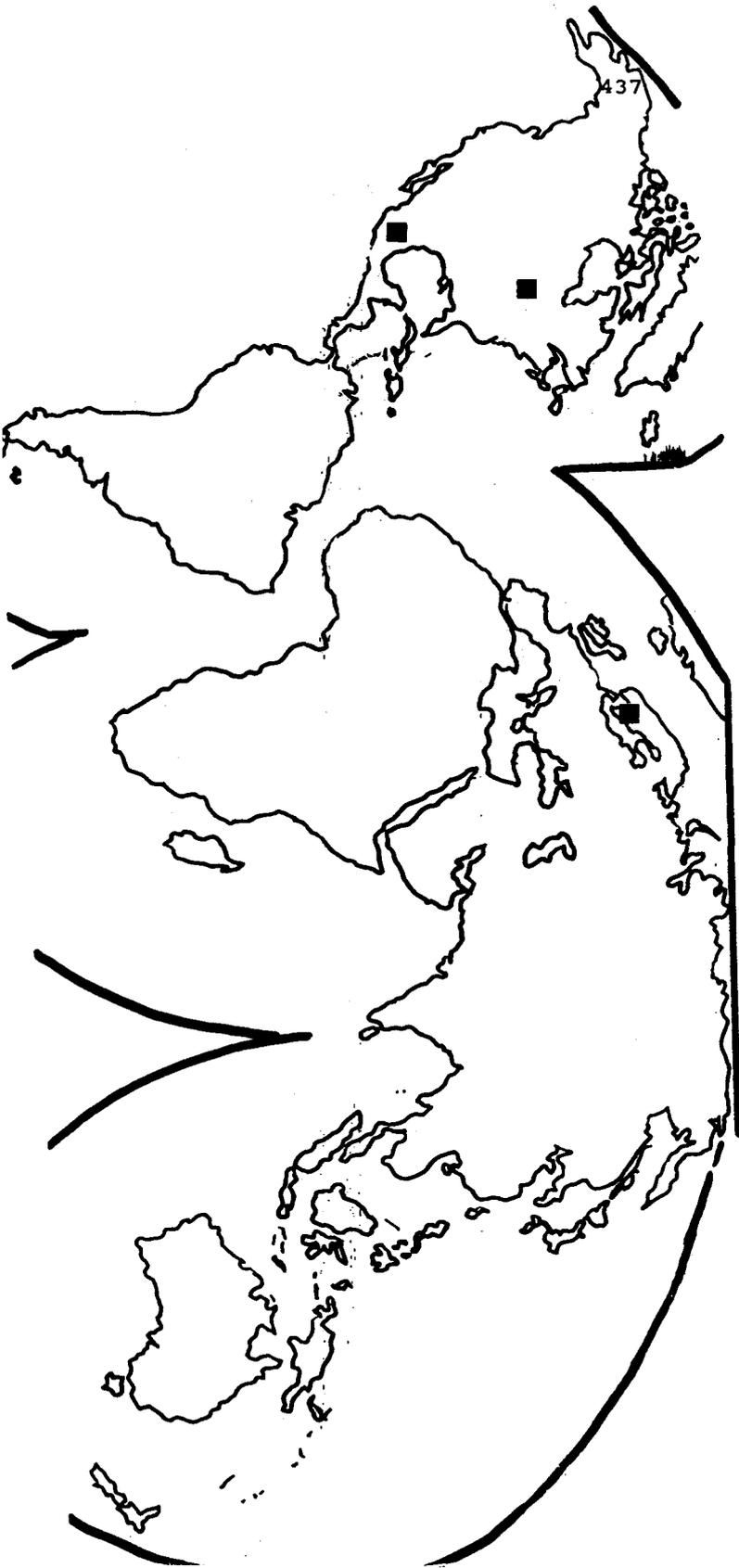
STANDARD WELDING's PRODUCTION FACILITIES 1979-81



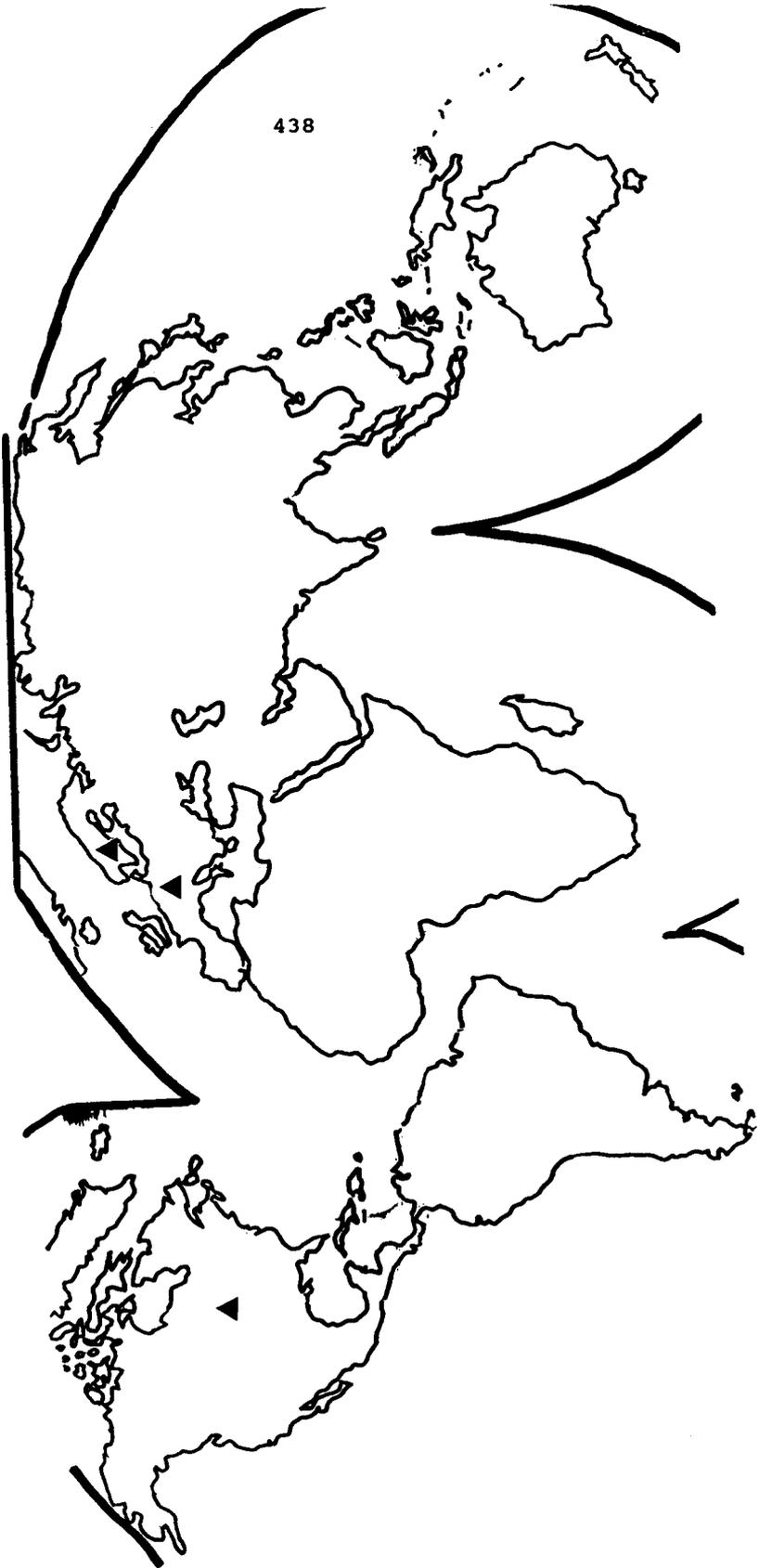
STANDARD WELDINGS PRODUCTION FACILITIES 1982-83



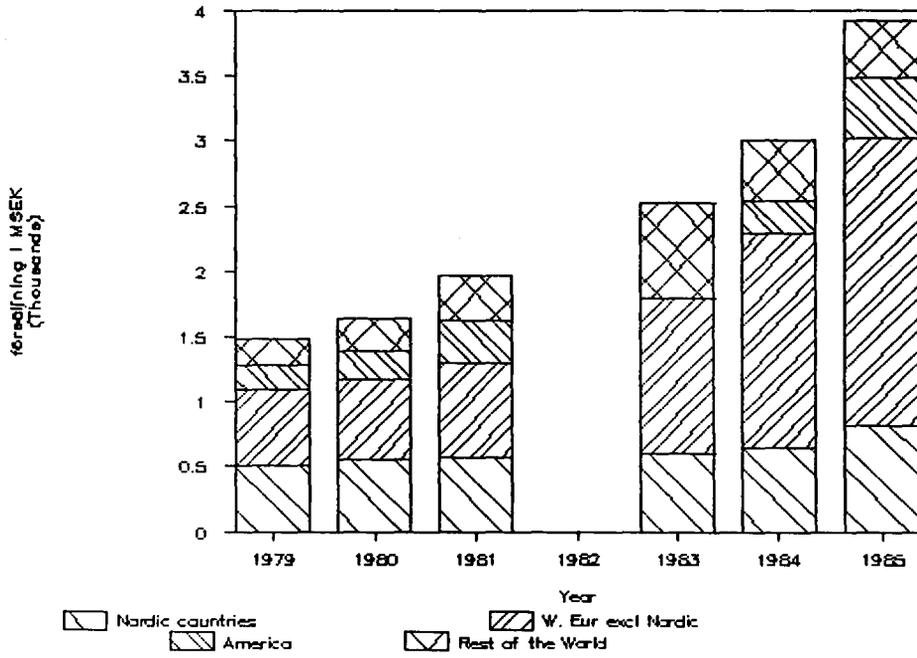
STANDAR WELDING's PRODUCTION FACILITIES 1984-86



FACTORIES
AUTOMATIONS PRODUCTION FACILITIES
1979-1986



Forsaljning per produkt



Published material, not quoted in Chapter 7

Affärsvärlden (1987) "ESAB måste jaga andelar för att hålla sig i topp" no. 19 pp. 62-65.

ESAB AB (B) Case from Institute of International Business, Stockholm School of Economics

Financial Times (1987) "ESAB: a strategy to reshape an industry", Dec 16.

Manager Magazin (1987) "Die pfiffigen Hessen" (July) pp. 232-241.

Torekull, Lars (1987) "Med IBMs nätverk blir hela Europa ESABs hemmamarknad" Projekt Framtiden, IBM's customer journal.

Welding Review (1984), "ESAB's 80 Year Jubilee Special Supplement" (August).

Speech

"Restructuring ESAB" speech delivered by Managing Director Bengt Eskilsson at Institute of International Business' seminar 'Global Competition and Strategy' arranged September 20 1986 at Stockholm School of Economics.

ESAB's published material

Annual Reports 1979-1987

Internal material

Segments from 'The ESAB Group Market Review 1988';

Segments from consultancy report on the 'sub-division Standard Machines' compiled in 1987:

Group Purchaser's annual report for 1986 on 'Division Consumables' procurement and suppliers:

Margins and profits, Div C and S's market companies:

Internal flows 1986 for Div C;

Report on financial structure delivered to the board for annual reports 1979-1986;

Balance Sheets and loan reports for market companies 1985 and 1986.

Appendix 18.1

List of companies to which the survey was mailed

Volvo AB
Electrolux AB
ASEA
Saab-Scania AB
Ericsson Telefon AB LM
SAS
Stora
SKF AB
Skanska AB
Trelleborg AB
Nordstjernan AB
Procordia AB
Swedish Match AB
Svenska Cellolusa AB
Nobel Industrier Svenska AB
Sandvik AB
Esselte AB
SSAB
Atlas-Copco AB
ALfa-Laval AB
Catena AB
AGA AB
Axel Johnsson AB
ABV
Bilspedition
BPA
Holmens Bruk AB
Mo och Domsjö AB
ASSI
Euroc
Bonnierföretagen AB
Pharmacia
Skåne Gripen AB
Astra AB
ESAB
Perstorp AB
PLM AB
SIAB
Norrländska Skogsägares Cellulosa AB
Stena AB
Hexagon AB
Bahco Investment AB
Cardo AB
LKAB
Fermenta AB
Kanthal Höganäs AB
Transatlantik
Aritmos
Gambro AB
Marieberg, Tidnings AB



Sedan början av 1986 undersöker civ ek Karl Åhlander vid Handelshögskolan i Stockholm under Prof Bertil Näslunds ledning vilken extern finansiell verksamhet som tillverkande svenska företag bedriver. Studien syftar till att kartlägga vilka synergier som finns mellan den tillverkande och den finansiella verksamheten.

En studie av stora nordamerikanska företag samt en studie av tre större svenska företags finansiella verksamhet har lett fram till ett antal hypoteser om vilka faktorer som leder till att tillverkande företag engagerar sig i finansiell verksamhet.

Slutfasen av projektet utgörs av en enkätundersökning som sänds till de 50 omsättningsmässigt största svenska tillverkande aktiebolagen. Syftet med studien är tvåfaldig, den skall;

- Testa några av hypoteserna kring vilka synergier som motiverar den finansiella verksamheten hos tillverkande bolag;
- Kartlägga omfattningen, organisationen och bredden av den finansiella verksamheten hos dessa bolag.

Er medverkan är av synnerlig vikt för genomförandet av projektet och vi ber Er att ta den ungefärliga timmes arbetstid som behövs för ifyllandet av enkäten. Behovet av en fullödlig och komplett bild av finansverksamheten hos tillverkande bolag torde i sig vara en tillräcklig grund för ifyllandet av enkäten, men vi tror också att Ni genom ifyllandet får ett tillfälle att gå igenom Er organisation av verksamheten utifrån ett nytt perspektiv.

Om Ni vill veta mera om enkäten och/eller forskningsprojektet är Ni varmt välkommen att kontakt oss. Till detta kommer att Ni har möjligheten att skicka efter någon av de forskningsrapporter som ligger till grund för arbetet, och att ett deltagande i enkäten garanterar Er ett exemplar av den populärvetenskapliga versionen av enkäten. Rapporten kommer att publiceras i början av 1989

Med vänliga hälsningar

Prof Bertil Näslund
Institutionen för finansiell
ekonomi vid Handelshögskolan

Civ ek Karl Åhlander
Institute of International
Business vid Handelshögskolan

Definitioner av termer använda i enkäten⁴³

ARBITRAGE: utnyttjandet av prisskillnader mellan olika geografiska finansiella marknader, eller prisskillnader mellan likartade finansiella instrument eller förbindelser för att inom en dag ta hem denna prisskillnad.

BOLAGISERADE AFFÄRSOMRÅDEN: affärsområden som är separata legala enheter med egen tillverkning.

FINANSAVDELNING: är en avdelning som arbetar inom koncernens huvudmannablag och som i internredovisningen inte betraktas som en resultatenhet.

INTERNA VALUTASÄKRINGSKONTRAKT: kontrakt mellan koncernenheter om valutasäkring av framtida betalningsflöden. Dessa flöden kan såväl leda till reala betalningar mellan olika juridiska enheter inom koncernen som en avräkning i internredovisningen.

INTERNBANK: är en avdelning/del av avdelning inom koncernens huvudmannablag som i internredovisningen betraktas som en resultatenhet.

FINANSBOLAG: är ett svenskt eller utländskt bolag som betraktas som finansbolag enligt det lands lagar i vilket det har sitt juridiska domicil och där bolagets huvudmannablag (ev. tillsammans med andra koncernenheter) har en majoritet av rösterna i bolaget. Därutöver skall det driva en löpande verksamhet med hjälp av personal verksamma vid bolaget.

NB. Detta innebär att bolag bildade för upplåning av medel som inte har någon egen personal enligt denna definition inte betraktas som finansbolag.

MARKNADSBOLAG: är enheter som säljer huvudmannablagets produkter på olika marknader och som är separata legala enheter.

ORELATERADE PERSONER: är juridisk eller enskild person som koncernen i sin icke-finansiella verksamhet inte har någon affärsförbindelse med.

PLACERING: köp av enkelt eller löpande skuldebrev alt. köp av andel i bolag i syfte att tjäna pengar på det inköpta när vidarförsäljning sker. Några industriella insatser skall inte vara planerade vid köpet av andelar i bolaget.

POSITIONSTAGANDE: att under en tid längre än en dag ha en syn på finansiella variablers framtida utveckling och placera eller ingå förbindelser i enlighet med denna syn.

UPPLÅNING: utgivande av skuldebrev, löpande eller enkelt, som säljs på penning- eller kapitalmarknad med rörlig eller fast räntesats.

UPPTAGANDE AV LÅN: Lån hos bank där lånehandling upprättats.

UTLÅNING: Utlåning av pengar där lånehandling upprättas.

VALUTASÄKRING: ingåendet i förbindelser, ägandet av tillgångar eller kombinationer av förbindelser eller ägande av tillgångar som garanterar ett visst värde i en valuta för en framtida betalning i annan valuta.

Del 1
FINANSCHEFENS ENKÄT

FINANSVERKSAMHETENS ORGANISATION,
FILOSOFIN BAKOM FINANSVERKSAMHETEN OCH DESS OMFATTNING

Företag:

Enhet:

Namn:

Befattning:

Tfn:

Enkäten har ett trefalt syfte:

- (1) Den skall ge svar på vilka finansiella aktiviteter som koncernen är engagerad i, hur koncernens finansverksamhet i huvuddrag är uppbyggd och identifiera vilka enheter som utför vilka aktiviteter.
- (2) Den skall besvara vilken övergripande filosofi som utgör grunden för koncernens finansiella verksamheten.
- (3) Den skall underlätta identifikationen av mottagare av enkät två och tre.

Informationen från denna och övriga enkäter kommer endast att rapporteras i aggregerad form och på ett sådant sätt att företagets verksamhet, filosofi för finansverksamheten och organisation inte kommer att kunna identifieras. Efter presentationen av slutrapporten kommer alla enkäter och databasen att förstöras. **MATERIALET BEHANDLAS STRIKT KONFIDENTIELLT.**

INSTRUKTIONER FÖR IFYLLANDE AV ENKÄTEN

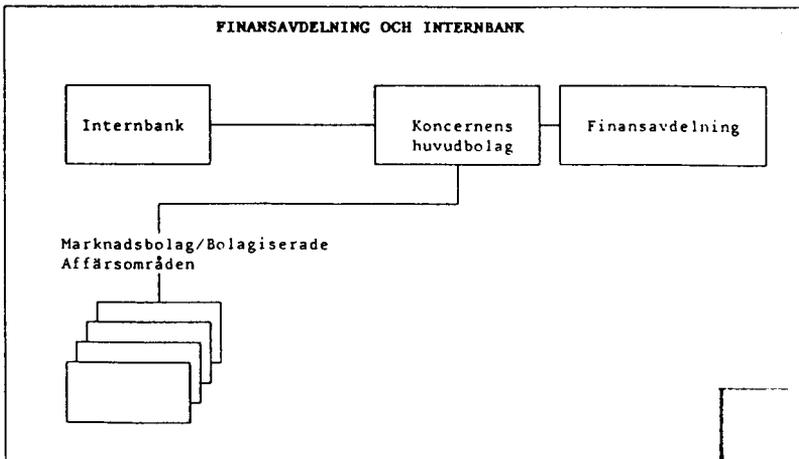
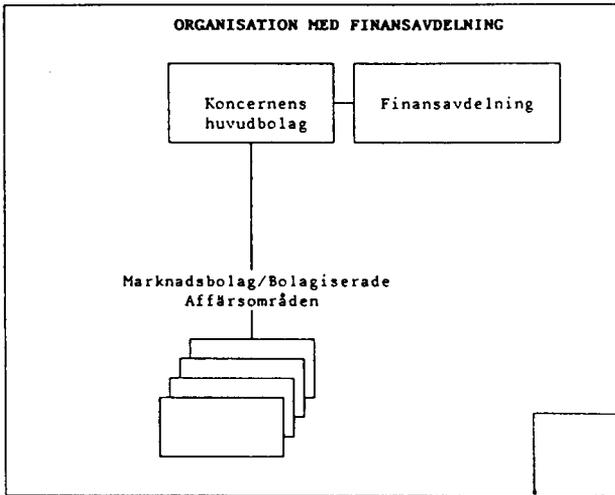
- Var vänlig läs igenom definitionerna av finansavdelning, internbank och finansbolag innan Ni fyller i enkäten. De givna definitionerna utgör mina operationaliseringar och jag gör inga anspråk på att dessa definitioner är de i någon mening "riktiga".
 - Definitionerna finns på ett separat blad som är ibläddrat i detta häfte. Förslagsvis kan Ni ha sidan uppslagen medan enkäten besvaras. De ord som i frågedelarna är skrivna med fet stil finns definerade i denna lista.
 - Välj bland de sju olika organisationsplanerna på de följande tre sidorna ut den organisationsplan som liknar Er organisation av finansrörelsen mest. Om stora delar av finansverksamheten sköts av marknadsbolag alt. bolagiserade affärsområdena kommer detta att framgå vid besvarandet av de följande frågorna. Där anger Ni vilka enheter som utför olika finansiella aktiviteter. En del av de föreslagna aktiviteterna gäller inte Ert företag, pga av Er organisationsform eller av andra skäl. I sådana fall kryssas rutan "ej tillämbart" i.
 - Fördela del 2 och 3 enligt rutan som står efter frågorna om vilka enheter som utför de olika aktiviteterna. Besvara därefter frågorna på de efterföljande sidorna. Kommentera gärna enkätens frågor på de föreslagna platserna eller på ett separat blad.
- Ta gärna kontakt med mig [Karl Åhlander, tfn 08-736 01 20 ank. 362] om det skulle föreligga några frågor. Jag vore väldigt tacksam om Ni tar Er tid att besvara frågorna. Det vore bra att få tillbaka enkäten före den 27 maj.

Med vänliga hälsningar

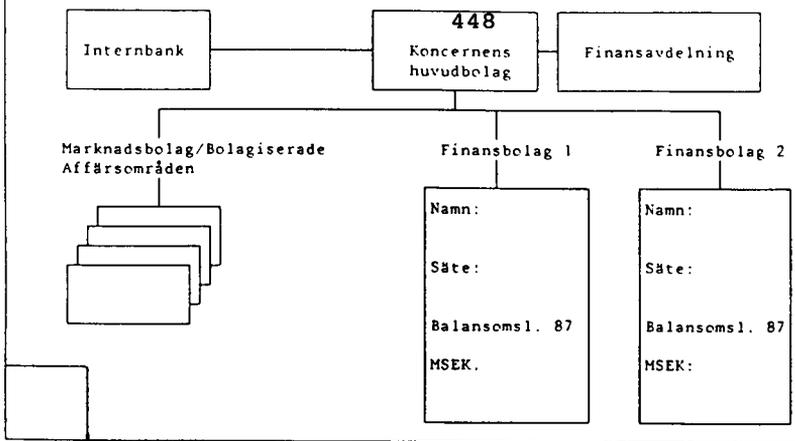
Karl Åhlander

1. Organisationsform

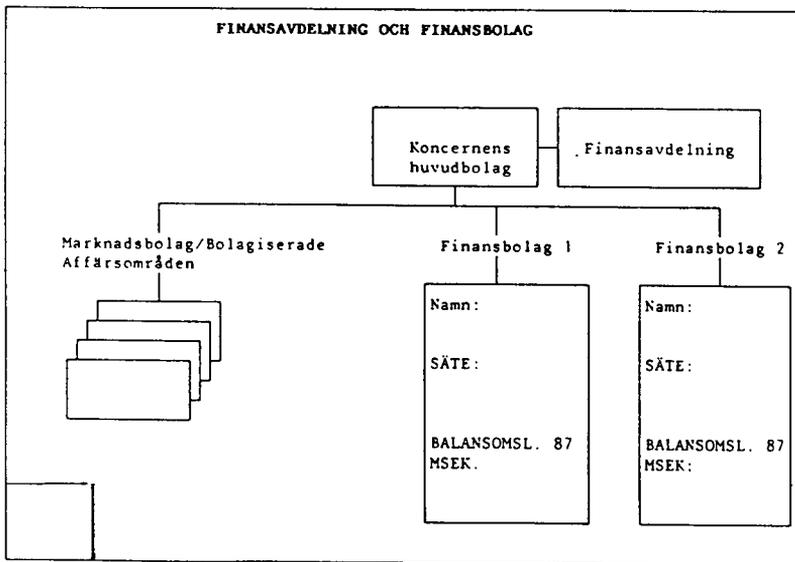
Studera de sju olika organisationsplanerna på de följande tre sidorna. Markera med ett kryss i rutan vilken organisationsplan Ni finner mest lik Er. Har Ni några kommentarer till Er organisationsform är jag tacksam om Ni kan skriva ner dessa på enkätens sista sida.



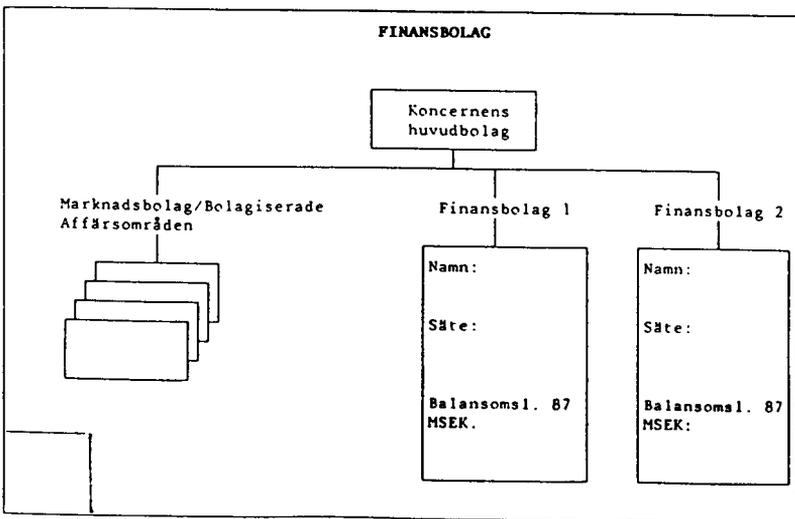
FINANSDELNING, INTERNBANK OCH FINANSBOLAG

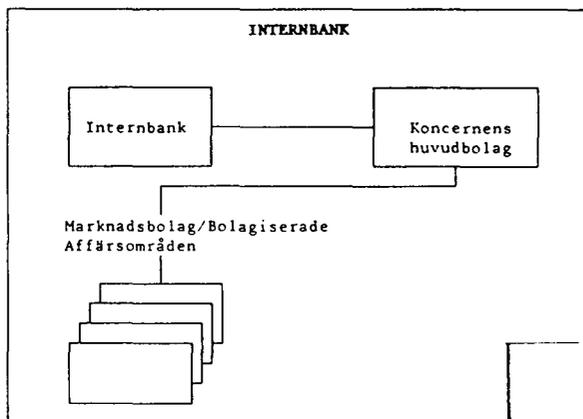
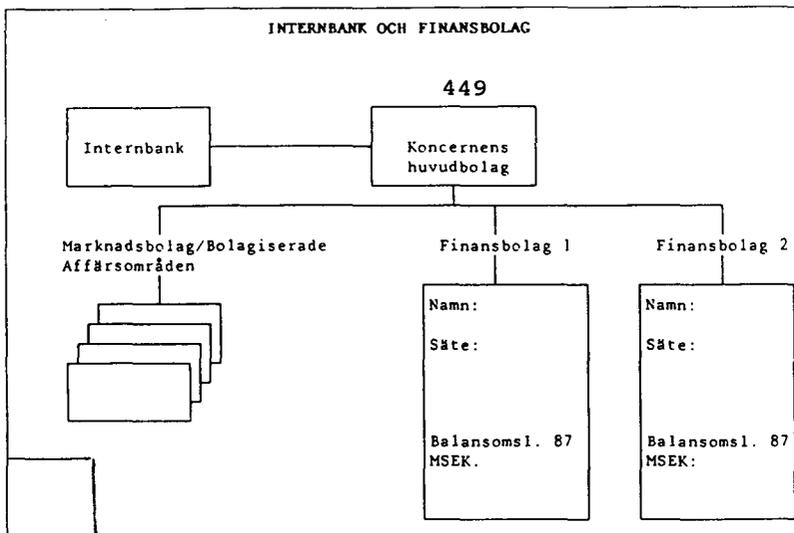


FINANSDELNING OCH FINANSBOLAG



FINANSBOLAG





1b. Om Ni valt en organisationsplan med ett finansbolag vore jag tacksam om Ni dels fyllde i uppgifterna i rutan för finansbolaget/bolagen samt svarade på frågan nedan.

HUVUDVERKSAMHET FINANSBOLAG 1: _____

HUVUDVERKSAMHET FINANSBOLAG 2: _____
(om sådan existerar)

- Om utlåningsverksamhet förekommer, se fråga 2a-2c besvara enkät nr 2 "UTLÅNINGSVERSAMHET" eller låt huvudansvarig för denna verksamhet besvara enkäten.
- Om leasingverksamhet förekommer, se fråga 2d-2f besvara enkät nr 3 "LEASINGVERKSAMHET" eller låt huvudansvarig för denna verksamhet besvara enkäten.

450
FÖRDELNING AV AKTIVITETER UTFÖRDA AV DE OLIKA ENHETERNA

Aktiviteter: kryssa i rutan för den enhet som har huvudansvaret för aktiviteten. Om flera enheter har delat ansvar kryssa i rutorna för dessa enheter.

	FINANS AVD	INTERN BANK	FINANS BOLAG	MARKNADS- AFFÄRSBOL	EJ TILL- BART
1a. Upptagande av lån hos sv. banker	<input type="checkbox"/>				
1b. Upptagande av lån hos utl. banker	<input type="checkbox"/>				
1c. Upplåning på sv. penningmarknaden	<input type="checkbox"/>				
1d. Upplåning på utl. penningmarknader	<input type="checkbox"/>				
1e. Upplåning på den sv. kapitalmarknaden	<input type="checkbox"/>				
1f. Upplåning på utl. kapitalmarknader	<input type="checkbox"/>				
1g. Hantering av koncernbolagens likviditet.	<input type="checkbox"/>				
2a. Utlåning till egna kunder/leverantörer	<input type="checkbox"/>				
2b. Utlåning till koncernbolag.	<input type="checkbox"/>				
2c. Utlåning till orelaterade personer	<input type="checkbox"/>				
2d. Leasing av egen utrustning till kunder/leverantörer	<input type="checkbox"/>				
2e. Leasing av annans utrustning till koncernbolag	<input type="checkbox"/>				
2f. Leasing av annans utrustning till orelaterade personer	<input type="checkbox"/>				
3a. Placering på den sv. penningmarknaden.	<input type="checkbox"/>				
3b. Placering på utl. penningmarknader (utl. likviditet).	<input type="checkbox"/>				
3c. Placering på den sv. kapitalmarknaden.	<input type="checkbox"/>				
3d. Placering på den sv. aktiemarknaden.	<input type="checkbox"/>				
4a. Valutasäkring av handelsflöden.	<input type="checkbox"/>				
4b. Utställande av interna valutasäkringskontrakt vis-á-vis koncernenheter.	<input type="checkbox"/>				
5. Hantering av upplåningspolitikens skattemässiga konsekvenser.	<input type="checkbox"/>				
6. Arbitrageverksamhet.	<input type="checkbox"/>				
7. Positionstagande.	<input type="checkbox"/>				

2. Upplåning och upptagande av lån

Ange andelen av lånefinansiering över omsättningen som 1987-12-31 var finansierat genom:

Upptagande av lån hos svenska banker: %

Upptagande av lån hos utländska banker: %

Upplåning på svenska penningmarknaden: %

Upplåning på utländska penningmarknader: %

Upplåning på den svenska kapitalmarknader: %

Upplåning på utländska kapitalmarknader: %

TOTALT: 100 %

3. Likviditet

Hur mycket outnyttjade kreditlinjer, stand-by lines of credit etc. har ni i procent av Er omsättning 1987?

%

Hur stor är likviditeten, (penningmarknadsinstrument, utestående dagslån och in blanco lån, samt banktillgodohavande) i förhållande till omsättningen 1987?

%

4. Rating (Om sådan finns aktuell)

Företaget har följande rating för:	S&P	Moody's	Eurorating
U.S .-commercial papers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eurocommercial papers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bondrating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Rente & valutapositioner eller -säkring skapas normalt med hjälp av följande instrument:

Valuta terminskontrakt.	<input type="checkbox"/>
Valutafutures	<input type="checkbox"/>
Valutaoptioner	<input type="checkbox"/>
Rente terminskontrakt.	<input type="checkbox"/>
Rentefutures	<input type="checkbox"/>
Renteoptioner	<input type="checkbox"/>
Swapar (skuldbytesavtal)	<input type="checkbox"/>
Swapar i kombination med upplåning	<input type="checkbox"/>

6 Arbitrage verksamheten:

Har Ni under de sista tre åren genomfört någon av följande **arbitrage** typer.

- Utnyttjande av inkonsistenser i centralbankers ränte sättning av diskonterbara växlar? "Centralbanksarbitrage".
- Arbitrage mellan penningmarknadssegment inom ett land där segmenteringen skapats av de lokala myndigheterna. "Intranationellt arbitrage".
- Arbitrage mellan penningmarknader i olika länder där segmenteringen skapats av något av de berörda ländernas valutaregleringar. "Internationellt arbitrage".
- Arbitrage mellan eller inom oreglerade finansiella marknader där prissättningen temporärt varit inkonsistent. "Triangelarbitrage".

Rangordna de av de fyra arbitragetyperna som Ni genomfört efter betydelsen för Ert resultat under de sista tre åren: (1:a viktigast, 4:a minst viktigt)

	Har genomfört	Betydelse
Centralbanksarbitrage		
Intranationellt arbitrage		
Internationellt arbitrage		
Triangelarbitrage		

7. Positionstagande:

Har Ni under de sista tre åren skapat någon av följande **positions** typer.

- Positioner i penningmarknadssegment inom ett land där segmenteringen skapats av de lokala myndigheterna. Intranationella positioner.
- Positioner mellan penningmarknader i olika länder där segmenteringen skapats av något av de berörda ländernas valutaregleringar. Internationella positioner.
- Positioner mellan eller inom oreglerade finansiella marknader där prissättningen temporärt upplevts som inkonsistent. Triangelpositioner.

Rangordna de av de tre positionertyperna som Ni genomfört efter betydelsen för Ert resultat under de sista tre åren:

(1:störst positivt resultatbidrag- 3:a lägst positivt bidrag till verksamheten)

	Har genomfört	Betydelse
Intranationellt arbitrage		
Internationellt arbitrage		
Triangelarbitrage		

Del 2
UTLÅNINGSVERKSAMHET

Företag:

Enhet:

Namn:

Befattning:

Tfn:

Enkäten har två syften

- (1) Den skall ge svar på vilken omfattning koncernens utlåningsverksamhet har.
- (2) Den skall kartlägga vilka faktorer som utgör grunden för utlåningsverksamheten.

Informationen från denna och övriga enkäter kommer endast att rapporteras i aggregerad form och på ett sådant sätt att företagets verksamhet, filosofi för finansverksamheten och organisation inte kommer att kunna identifieras. Efter presentationen av slutrapporten kommer alla enkäter och databasen att förstöras. **MATERIALET BEHANDLAS STRIKT KONFIDENTIELLT.**

1. Utlåningsverksamhet [Som utlåning räknas lån där kreditavtal upprättas och därutöver inkluderas handelskrediter utan kreditavtal med en löptid över 180 dagar]

	1985	ULTIMO	1986	1987
Koncernens utlåningstock till egna kunder uppgick till:	<input type="text"/> MSEK	<input type="text"/> MSEK	<input type="text"/> MSEK	<input type="text"/> MSEK
Koncernens utlåning till koncernens leverantörer uppgick till:	<input type="text"/> MSEK	<input type="text"/> MSEK	<input type="text"/> MSEK	<input type="text"/> MSEK
Koncernens utlåning till juridisk eller enskild person som koncernen i sin icke-finansiella verksamhet inte har någon affärsförhållande till:	<input type="text"/> MSEK	<input type="text"/> MSEK	<input type="text"/> MSEK	<input type="text"/> MSEK

2. Personal [Kryssa i det tillämpliga]

	1	2-5	6-10	11-20	20-
Antal anställda i utlåningsverksamheten:	<input type="text"/>				
Antal anställda med i huvudsak kreditanalys som uppgift:	<input type="text"/>				
Antal av kreditbedömmarna som har tidigare erfarenhet från:					
• bank eller rent finansbolag:	<input type="text"/>				
• kund eller leverantörsfirma till koncernens icke-finansiella enheter	<input type="text"/>				
• koncernens icke-finansiella enheter.	<input type="text"/>				
• företag som tillhör någon av de industrier som koncernen är involverad i:	<input type="text"/>				
annan bakgrund:	<input type="text"/>				

3. Vi ser vår största konkurrens fördel vis-á-vis banker och rena finansbolag i att:

4. Datakapacitet

Datakapaciteten som används för utlåningsverksamheten är:
 [Kryssa för det tillämpliga]

- a) Utlåningsenhetens egen eller sådan som uteslutande används inom finansverksamheten
- b) Del av koncernens i huvudsak icke-finansiella datakapacitet:
- c) Datorkapacitet hämtad från annat håll än från koncernenheter:

5. Uppskatta ung. andel av den totala låneportföljen vid slutet av 1987 som har en ursprunglig återbetalningstid på:

[kryssa i en ruta i varje kolumn]

	mindre än ett år	mellan ett och fem år	mer än fem år
0%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
70%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
80%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
90%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Uppskatta ung. andel av den totala låneportföljen vid slutet av 1987 som har en ursprunglig räntebindningsperiod på:

[Kryssa i en ruta i varje kolumn]

	mindre än ett år	mellan ett och fem år	mer än fem år
0%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
70%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
80%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
90%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tack för Er hjälp med att fylla i enkäten. Er medverkan har en stor betydelse för att jag skall kunna genomföra forskningsprojektet.

Har Ni några frågor kring innehållet i enkäten eller kring forskningsprojektet är Ni varmt välkomna att kontakta mig på Handelshögskolan i Stockholm.

Tfn. 08-736 01 20 ank 362

Om jag inte skulle vara anträffbar lämna gärna ett meddelande till Vanja Ekberg. ank 170. så kontaktar jag Er.

Med vänlig hälsning

Karl Åhländer

Del 3
LEASINGVERKSAMHET

Företag:

Enhet:

Namn:

Befattning:

Tfn:

Enkäten har två syften

- (1) Den skall ge svar på vilken omfattning koncernens leasingsverksamhet har.
- (2) Den skall kartlägga vilka faktorer som utgör grunden för leasingverksamheten.

Informationen från denna och övriga enkäter kommer endast att rapporteras i aggregerad form och på ett sådant sätt att företagets verksamhet, filosofi för finansverksamheten och organisation inte kommer att kunna identifieras. Efter presentationen av slutrapporten kommer alla enkäter och databasen att förstöras. **MATERIALET BEHANDLAS STRIKT KONFIDENTIELLT.**

1. Leasing verksamhet

	1985	ULTIMO 1986	1987
Koncernens utestående leasingvolym av egentillverkade produkter till koncernens kunder.	<input type="text"/> MSEK	<input type="text"/> MSEK	<input type="text"/> MSEK
Koncernens volym av leasing till koncernbolag av utrustning som inte tillverkas av koncernen:	<input type="text"/> MSEK	<input type="text"/> MSEK	<input type="text"/> MSEK
Koncernens volym av leasing till juridisk/enskild person som koncernen i sin icke-finansiella verksamhet inte har någon affärsförbindelse med:	<input type="text"/> MSEK	<input type="text"/> MSEK	<input type="text"/> MSEK

2 Personal [Kryssa i det tillämpliga]

	1	2-5	6-10	11-20	20-
Antal anställda i leasing- verksamheten:	<input type="text"/>				
Antal anställda med i huvud- sak kreditanalys som uppgift:	<input type="text"/>				
Antal av kreditbedömnarna som har tidigare erfarenhet från:					
• bank, rent finansbolag, eller leasingbolag	<input type="text"/>				
• kund eller leverantörsfirma till koncernens icke- finansiella enheter:	<input type="text"/>				
• koncernens icke-finansiella enheter:	<input type="text"/>				
• företag som tillhör någon av de industrier som koncernen är involverad i:	<input type="text"/>				
• annan bakgrund:	<input type="text"/>				

3. Vi ser vår största konkurrens fördel vis-å-vis banker och rena finansbolag i att:

4. Datakapacitet

Datakapaciteten som används för leasingverksamheten är:

[Kryssa för det tillämpliga]

a) Leasingenhetens egen eller sådan som uteslutande används inom finansverksamheten

b) Del av koncernens i huvudsak icke-finansiella datakapacitet:

c) Daterkapacitet hämtas från annat håll än från koncernenheter:

5. Uppskatta ung. andel av den totala leasingportföljen vid slutet av 1987 som har en ursprunglig återbetalningstid på:

[kryssa i en ruta i varje kolumn]

	mindre än ett år	mellan ett och fem år	mer än fem år
0%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
70%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
80%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
90%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Leasingkontrakten har villkor som innebär att leasingavgiften förändras när räntenivån förändras.

[Kryssa i den tillämpliga rutan]

Ja, alltid	mellan 100% och 67% av avtalen har sådana villkor	mellan 66% och 33% av avtalen har sådana villkor	mellan 33% och 0% av avtalen har sådana villkor	Nej, aldrig
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Tack för Er hjälp med att fylla i enkäten. Er medverkan har en stor betydelse för att jag skall kunna genomföra forskningsprojektet.

Har Ni några frågor kring innehållet i enkäten eller kring forskningsprojektet är Ni varmt välkomna att kontakta mig på Handelshögskolan i Stockholm.

Tfn. 08-736 01 20 ank 362

Om jag inte skulle vara anträffbar lämna gärna ett meddelande till Vanja Ekberg. ank 170, så kontaktar jag Er.

Med vänlig hälsning

Karl Åhländer



