

Financing the German *Mittelstand*

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ABSTRACT. This paper describes how the German *Mittelstand*, or small- and medium-sized enterprises, are financed in Germany. The role of the German *Mittelstand*, both in a static and in a dynamic framework, is described and contrasted with that of the same size group in other leading industrialised countries. We find that in general, the *Mittelstand* has played a more important role in Germany than in other industrialised nations, such as the United States or the United Kingdom. The traditional success of the German *Mittelstand* is partly attributable to a system of finance that is richly layered by complementary institutions designed to meet the financial needs of both large and smaller enterprises. However, we find evidence that even under the German system of finance liquidity constraints exist and are greater for smaller firms. The German system of finance moreover seems particularly deficient in the channeling of funds to new firm startups in the newer industries.

1. Introduction

Something of a paradox has emerged with respect to the system of financing for the German *Mittelstand*, or small- and medium-sized enterprises in Germany. On the one hand, there is reason to believe that through the development of a finely layered system of institutions linking

together financial institutions, governments, and private firms, that the system of finance in Germany serves as a model for providing funds to small- and medium-sized enterprises. Not only is the *Mittelstand* the backbone of the German *Wirtschaftswunder*, or economic miracle, and subsequent rise to economic power, but it also appears to have played a more important role in German economic development than in either the United States or the United Kingdom.

On the other hand, while the German *Mittelstand* has provided the backbone for Germany's economic success, one aspect has been noticeably lacking in recent years – the emergence of small high-technology companies in the emerging industries such as software, biotechnology, and computers. And it may be that the lack of entrepreneurial activity in high-technology industries is directly attributable to rigidities and constraints in providing liquidity to new firms in new industries imposed by the very same system of finance in Germany.

In fact, there are two institutional features of the German financial system that sharply contrast to that practised in the United States and the United Kingdom, both of which may impact the extent to which small- and medium-sized enterprises are able to obtain access to finance. First, companies in Germany typically rely almost exclusively upon banks for external finance. The external capital market remains relatively undeveloped in Germany. Second, not only do the banks represent the major financial intermediary supplying capital to firms, but they are also extensively represented on the supervisory boards of companies. Cable (1985, p. 119) refers to this peculiarity of the German financial system which links finance to supervision as a “quasi-internal capital market.”

The purpose of this paper is to describe the

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system of finance in Germany and how the German *Mittelstand* obtains its finance. In addition, we assess the evidence to date upon the effectiveness of the German system of finance in providing funding for the *Mittelstand*.

In the second section of this paper we analyse the role of small- and medium-sized firms in Germany, both in a static context and through a dynamic lens. We find that the *Mittelstand* plays a more important role in Germany than do small- and medium-sized enterprises in the United States and the United Kingdom. In the third section of the paper we examine the system of finance. The particular implications of this system for financing small- and medium-sized enterprises are the focus of the fourth section. In the fifth section, the question is addressed, "How effective is the system of finance for small- and medium-sized enterprises in Germany?" In the sixth section a summary and conclusions are provided. We do suggest that the strength of the German system of finance has been in providing funds for incumbent firms, both large and small, in traditional industries. What the system of finance is less capable of doing is providing finance for new firms in newly emerging high-technology industries.

2. Role of the *Mittelstand* in Germany

Measurement

One of the popular perceptions about Germany is that it is dominated by a handful of large, corporate giants, such as Daimler Benz, Siemens, and Volkswagen. While these large corporations are indeed large and dominant, even by international standards, at the same time the German economy is much more rich and complex than to be characterised solely by the existence of large corporations.

What, exactly, is the role of small- and medium-sized enterprises in Germany, or what has become known as the German *Mittelstand*? As in many other countries, even measuring the extent to which small- and medium-enterprises contribute to the German economy poses a challenge. Without careful attention to measurement, the exact role that the German *Mittelstand* plays cannot be accurately ascertained.

The static role

The German Census of Business, or *Arbeitsstättenzählung*, provides the most reliable and comprehensive source for identifying employment levels at the level of the establishment. Collection of these data actually started in 1882, and in 1907 was extended to incorporate enterprise data as well as establishment data. The most recent Census of Business was completed in 1987.

According to the 1987 *Arbeitsstättenzählung*, what has been traditionally classified in Germany as small- and medium-sized businesses, that is a business which employs fewer than 100 employees, accounted for over one-half of all non-agricultural private sector employment. In addition, more than one-third of all employees worked in firms with fewer than 20 employees. And just over one-quarter of the workforce was employed by the largest corporations, that is firms with more than 1,000 employees (Fritsch, 1993).

It should be emphasised that Table I distinguishes between the distribution of employment by both firm (enterprise) size as well as plant (establishment) size. Not surprisingly, in general, the employment share accounted for by small- and medium-sized establishments exceeds the employment share accounted for by *mittelständische* firms.

A series of studies by Schwalbach (1989), Fritsch (1993), and Stockman and Leicht (1994) has compared different measures of economic activity in identifying the exact role of small- and medium-sized enterprises and establishments in Germany.¹ These studies have generally found a similar distribution of economic activity across firm-size classes, regardless of whether employment or sales is used to measure economic activity.

How does the share of economic activity accounted for by the German *Mittelstand* compare to that found in other leading developed industrialised countries? Acs and Audretsch (1993, Table 12.1) use a benchmark of employment in manufacturing accounted for by firms with fewer than 500 employees to compare the role of small- and medium-sized firms across a broad spectrum of developed industrialised countries. They find that in the United States 35.2 percent of manufacturing employment (in 1987) is accounted for by small- and medium-sized enterprises. The small-firm

TABLE I
The distribution of employment by firm and plant size in Germany, 1987, percentage shares^a

Size (employees)	All sectors		Manufacturing		Services	
	Plants	Firms	Plants	Firms	Plants	Firms
1–4	15.0	13.3	5.7	5.3	23.4	21.1
5–9	13.1 (28.1)	11.6 (24.9)	8.2 (13.9)	7.6 (12.8)	17.6 (41.0)	15.5 (36.6)
10–19	10.9 (39.0)	9.4 (34.4)	9.4 (23.3)	8.8 (21.6)	12.1 (53.1)	9.9 (46.5)
20–29	11.7 (30.7)	9.5 (43.8)	11.5 (34.3)	10.2 (31.8)	11.8 (65.0)	8.8 (55.3)
50–99	8.4 (59.1)	6.6 (57.0)	9.1 (43.4)	7.6 (39.4)	7.9 (80.4)	5.5 (66.0)
100–199	8.6 (67.7)	6.6 (57.0)	9.9 (53.3)	8.0 (47.3)	7.5 (80.4)	5.3 (66.0)
200–499	11.2 (78.9)	8.8 (65.8)	13.6 (66.9)	10.6 (57.9)	9.1 (89.4)	7.0 (73.0)
500–999	7.0 (85.9)	5.9 (71.6)	8.9 (75.8)	7.1 (65.0)	5.3 (94.7)	4.7 (77.7)
≥ 1000	14.1 (100)	28.5 (100)	23.8 (1000)	35.0 (100)	5.3 (100)	22.3 (100)

^a Cumulated values in brackets. Only non-agricultural private sector employment.

Source: Adapted from Fritsch (1993).

share of manufacturing employment is 39.9 percent in the United Kingdom (1986), and 71.8 percent in Portugal (1986). As can be calculated from Table I, 57.9 percent of German manufacturing employment was in enterprises with fewer than 500 employees. Thus, the share of economic activity accounted for by the German *Mittelstand* in manufacturing is considerably greater than in either the United States or the United Kingdom, but considerably less than that in Portugal, as well as Italy and Japan.² In any case, it is clear that the German *Mittelstand* accounts for a relatively large share of economic activity in Germany.

The dynamic view

Has the German *Mittelstand* become more or less important over time? Acs and Audretsch (1993) show that, as for virtually every leading industrialised nation, the share of manufacturing employment accounted for by small- and medium-sized enterprises increased between the early 1970s and the late 1980s. In particular, the German *Mittelstand* accounted for 54.8 percent of manufacturing employment in 1970, and 57.9 percent of manufacturing employment by 1987.

This shift towards an increased role in economic activity has not been constant across economic sectors. As Figure 1 shows, while there was a shift in economic activity away from larger enterprises and towards smaller firms in manufacturing between 1970 and 1987, the trend in

services was in the opposite direction (Fritsch, 1993).

The qualitative role

Simon (1988) has examined what he terms *Germany's hidden champions* – the highly successful export companies of the *Mittelstand*. These companies account for an average of 22.6 percent of the global market share in the relevant product market, and 31.7 percent of the European market share. The companies have, on average, 9.6 foreign subsidiaries – certainly an extraordinarily high number of foreign subsidiaries given the rather modest size of the parent companies.

At the same time, there has been a noticeable absence of startup activity in high-technology and high-information industries. The strength of the German *Mittelstand* pretty much reflects the strength of the German economy – in traditional manufacturing industries.

3. The German financial system

Perhaps the most striking feature of the German system of finance is the overwhelming importance of internal finance. During the 1980s about 90 percent of finance of physical and financial capital formation of large quoted German companies came from internal funds (Table II). For comparison, in Britain, only about 58 percent of such finance came from internal funds. In terms of

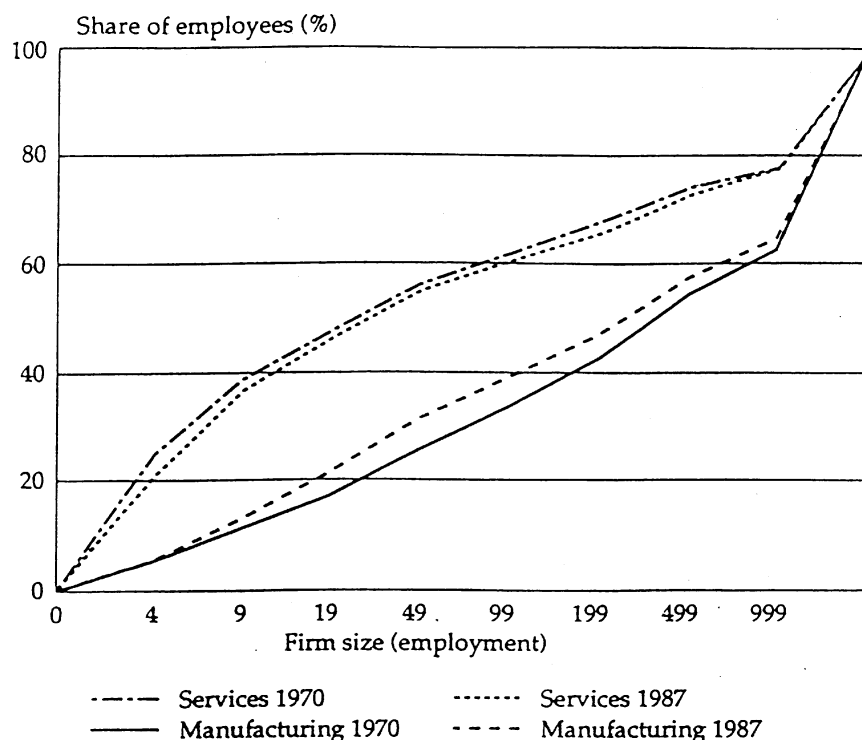


Fig. 1. Change in firm-size structure, 1979–1987, services and manufacturing.

sources of finance for physical capital, internal funds accounted for 138 percent in German companies but only 113 percent in British firms. The greater than 100 percent share of internal funds needs a word of explanation for the general reader. This presumably arises because these are figures for *flows*, so that if (e.g.) debt is being paid off (creating a negative percentage) the flow of internally generated funds in total new funds can then be greater than 100 percent.

There is at best only a limited market for corporate control in Germany. As Mayer and Alexander (1990) point out, the dividend payout ratio, defined as gross dividends divided by zero distribution profits, was 13 percent for large German firms but 31 percent for their counterparts in the United Kingdom during the 1980s.

The negligible role played by the market for control is evidenced by the small number of public corporations. In 1989, only 2,682 publicly limited companies, what are known as *Aktiengesellschaften* or AGs, existed in Germany. And of these only 501 were listed companies (Deutsche

Bundesbank, 1991b). Still, as Edwards and Fischer (1994) point out, the bulk of the largest German companies are, in fact, *Aktiengesellschaften*. Of the one hundred largest German companies, 88 are *Aktiengesellschaften*.

Financial and non-financial enterprises exert a high degree of ownership and influence on German firms. In 1988, non-financial enterprises accounted for 39.1 percent of the total nominal value of *Aktiengesellschaften*, and banks accounted for another 11.6 percent (Deutsche Bundesbank, 1991b). Edwards and Gordon (1994) observe that a network of institutions, including intercompany holdings and the proxy voting system (*Depotstimmrecht*), company law, code-termination law, stock exchange regulation, and the system of regulation has evolved providing a system of corporate control in Germany where the largest industrial enterprises exert a key influence.

The system of proxy voting, or *Depotstimmrecht*, enables banks to vote on the shares which are owned by customers of banks. By placing their shares in a trustee account, the customer assigns

TABLE II
Net and gross sources of finance for investment by non-financial enterprises in the United States, Japan, Germany and Britain, 1970–89^a (percent)

	U.S.	Japan	Germany	Britain
<i>Gross sources</i>				
Internally generated funds	66.9	33.7	55.2	72.0
New debt	41.2	62.1	24.0	25.0
New equity	0.8	3.5	2.1	4.9
Other	–8.8	0.7	18.6	–2.0
<i>Net sources</i>				
Internally generated funds	85.9	57.9	70.9	102.4
New debt	34.6	41.3	9.0	5.4
New equity	1.1	4.6	0.6	–3.3
Other	–21.5	–3.8	19.4	–4.4
<i>Gross Sources: 100 largest firms^b</i>	<i>1982–87</i>	<i>NA^c</i>	<i>1982–88</i>	<i>1982–88</i>
Internally generated funds	51.5	NA	89.6	58.2
New debt	30.2	NA	2.2	27.5
New equity	10.1	NA	8.2	14.3
Other	8.1	NA	NA	NA
<i>Net sources: 100 largest firms^b</i>				
Internally generated funds	79.1	50.9	137.9	112.9
New debt	3.2	19.0	–27.8	–1.6
New equity	3.1	30.0	–10.2	–11.3
Other	14.6	NA	NA	NA

^a The variable definitions vary somewhat across different countries because of differences in accounting practices.

^b In the U.S. and Japanese data these are the 100 largest manufacturing firms. For the Germany and British data these are the largest non-financial corporations from a sample of the biggest 115 companies in the countries concerned.

^c NA = not available.

Sources: OECD Financial Statistics; Meyer and Alexander (1990); Hall (1994).

the voting right to the bank. Not only are about one-half of all such shares deposited in these banks accounts, but the control over equity voting rights by the largest banks has had an especially strong effect on large diffusely held corporations (Edwards and Fischer, 1994).

The Economist reports that 85 percent of Germany's 171 largest quoted industrial and commercial firms had a single shareholder with over 25 percent of their votes. Only in 6 percent of the firms was the shareholder actually a bank.

Nor is it clear that German companies rely on banks as heavily as is commonly supposed for their finance. For example, Edwards and Fischer (1994) show that between 1950 and 1989 bank borrowing accounted for less than 12 percent of investment in German manufacturing physical assets.

At the same time, the studies by Edwards and Fischer and Franks and Mayer may actually under-

estimate the importance of bank influence. This is because the banks exercise proxy votes in companies on behalf of some of their customers, and own their own fund-management arms, enabling German banks to control firms without holding large stakes of their own. In particular, companies with a broad investor base and no dominant shareholder are particularly conducive to bank control. When this indirect control is accounted for, the control of the leading German companies by banks is considerably higher. For example, in 1992, banks controlled 95.5 percent of the voting rights of Siemens, 44.1 percent of the voting rights of Volkswagen, 98.5 percent of the voting rights of Hoechst, 94.7 percent of the voting rights of BASF, 91.3 percent of the voting rights at BAYER, 45.4 percent of the voting rights at Thyssen, and 98.1 percent of the voting rights at Mannesmann.³

According to the company law in Germany,

Aktiengesellschaften must be governed by a management board, or what is known as the *Vorstand*, as well as a supervisory board, or what is known as the *Aufsichtsrat*.⁴ If a company employs more than 2000 workers, the codetermination laws (*Mitbestimmung*) require that half of the members of the *Aufsichtsrat* are representatives of the employees.⁵

There are three *Grossbanken*, or large banks – the Deutsche Bank, the Dresdner Bank, and the Commerzbank. These three *Grossbanken* typically vote in support of the incumbent management. According to Edwards and Fischer (1994), this harmonious relationship between the three big banks and the largest firms reflects the development of a convergence of interests between the banks and the companies.

The German system of finance is unusually debt-heavy. Debt-to-equity ratios average as high as 4 to 1 in Germany, compared with around 1.3 to 1 in the United States.⁶ Table III shows an increase between 1971 and 1989 in the extent to which German firms have engaged in debt finance.

In general, a long-term shift in the structure of demand for external finance has taken place. The degree to which the largest non-financial firms have relied upon internal finance has increased significantly since the beginning of the 1970s. After examining the sources and uses of funds by German industrial firms between 1970 and 1989, Edwards and Fischer (1994) conclude that retained

earnings financed 62 percent of firms investments. In fact, when only the purchase of physical assets is considered, only 11 percent of the funding was financed by German banks.⁷

4. Financing small- and medium-sized enterprises

Financial institutions

While considerable attention has been placed on the role that the *Grossbanken* play in terms of financing the largest manufacturing corporations of Germany,⁸ substantially less emphasis has been placed on the other institutions comprising the German financial system. Vitols (1994) points out that, in fact, the *Big Three* banks only account for slightly less than one-tenth of all banking assets. The bulk of credit from the *Big Three* private banks is channelled into the largest firms. According to Vitols (1994, p. 7), “These banks have traditionally confined their industrial lending activities to larger corporate accounts.”

The largest financial institutions are the *Sparkassen*, which are essentially public savings banks, and the *Genossenschaftsbanken*, which essentially are co-operative banks. While the *Sparkassen* account for around forty percent of all banking assets, the *Genossenschaftsbanken* account for about 15 percent of total banking assets (Deeg, 1992). These financial institutions are generally oriented towards financing the German *Mittelstand*.

Vitols (1994) points out that the most important financial institution in providing finance to the German *Mittelstand* has been the *Sparkassen*, or savings banks. The savings banks are comprised of a three tier system consisting of:

1. The bottom tier, which consists of around 750 public savings banks. These *Sparkassen* are typically owned by the city or the county in which the *Sparkasse* is located. The local governments and savings banks have a mutual dependency, since a major focal point of loans from the *Sparkassen* involve local economic development. Vitols (1994), for example, observes that the savings banks have financed technology parks and other local development projects.

TABLE III
Structure of liabilities of West German firms 1971–1989
(per cent of total)

	1971	1981	1989
Equity capital	26	19	19
Debt	74	81	81
Of which			
– short-term	42	48	44
– long-term	20	19	16
– provisions ^a	10	14	21

^a Reserves against future claims.

Sources: Figures for 1971 and 1981 from ‘Business Finance in the U.K. and Germany’, *Monthly Report of the Deutsche Bundesbank*, Vol. 36 (1984), No. 11, p. 3. Figures from 1989 from ‘West German Enterprises Profitability in 1989’, *Monthly Report of the Deutsche Bundesbank*, Vol. 42 (1990), No. 11, p. 21. Adapted from Deeg (1993).

2. The middle tier, which consists of financial intermediaries, such as *Landesbanken*, or regional banks. These regional banks are owned by the states and regional public savings bank associations. The regional banks provide access to national and international capital markets, along with specialised services, such as management consulting and brokerage services to the *Sparkassen*. Because of their relatively small size many of the local savings banks do not have full access to national and international capital markets. In addition, their ability to provide and develop specialised services, such as management consulting and brokerage services, is limited. Thus, the role of the middle tier is to provide an institutional structure to fill in this gap.
3. The third tier consists of institutions at the national level. These institutions are able to provide access to the national and international credit markets.

The co-operative banking groups evolved from a long tradition in agriculture and small-scale craft production to the process of industrialisation in

the last century. Like the savings banks, the co-operative banks also have a three-tier structure consisting of:

1. The lowest tier, which is comprised of around 3,400 banks which are owned and governed mostly by small- and medium-sized enterprises;
2. A regional tier which provides the lower tier with specialised financial services, refinancing and training services; and
3. A national tier which provides analogous services to the regional tier along with providing a structure of co-operative banking associations (Deeg, 1992).

As Table IV indicates, the share of loans to firms accounted for by the *Big Three* German banks declined substantially from 15.4 percent in 1972 to 11.9 percent in 1982. During this same period the savings banks were able to increase their market share from 33.2 percent to 36.7 percent. At the same time, the co-operative banking groups increased their market share from 12.9 percent to 17.4 percent.

By the middle of the 1970s, the savings banks

TABLE IV
Bank loans to firms by major bank groups, 1972–1990 (column percentages)^a

Bank group	Year	Loans to all firms ^b	Loans to industry ^c	Loans to SMEs ^d
Commercial	1972	36.7	54.2	NA
	1982	30.1	38.8	NA
	1990	31.3	42.1	NA
Big Three Banks	1972	15.4	28.2	28.3
	1982	11.9	18.2	37.2
	1990	13.8	22.4	NA
Saving Banks	1972	33.2	26.1	36.7
	1982	36.7	33.2	28.4
	1990	33.6	30.6	NA
Cooperatives	1972	12.9	11.3	91.8
	1982	17.4	17.5	67.4
	1990	15.3	17.3	NA

^a Percentages do not sum to one hundred because all bank categories are not included.

^b Shares includes mortgage loans on commercial property. This category includes all firms as well as self-employed persons.

^c Shares are calculated without mortgage loans on commercial property. This category includes manufacturing industries only.

^d Numbers represent the percentage share of small and medium sized enterprises (SME) credits in the group's total loans to firms. SME credits are defined as mortgage loans of no more than DM 1 million and credits where the total credit engagement of the bank in a firm does not exceed DM 1 million.

Sources: Figures for 1972 and 1982 from KJ. Lubitz, *Bankmarketing gegenüber mittelständischen Betrieben* (Frankfurt: Fritz Knapp, 1984), p. 11. Figures for 1990 from Deutsche Bundesbank, *Statistische Beihefte zu den Monatsberichten der Deutschen Bundesbank*, Reihe 1, *Bankenstatistik nach Bankengruppen*, Feb. 1991, Table 6. Adapted from Deeg (1993).

had surpassed the entire private commercial banking sector as the largest source of business loans. While the economic and political power of the *Big Three* German banks, particularly in terms of providing finance and direction to the largest firms of Germany, has tended to pre-empt the attention from overseas, what must be one of the better kept secrets of Germany is the magnitude and role that these other institutions play in shaping the overall financial landscape of Germany – particularly in terms of providing finance to small- and medium-sized enterprises.

Perhaps the most striking shift over time has been the increased share of loans made by the Grossbanken to the German small- and medium-sized enterprises. In 1972, 28.3 percent of the loans made by the large German banks were allocated towards financing small- and medium-sized enterprises. By 1982, the small- and medium-share of loans made by big banks had risen to 37.2 percent.

At the same time, the share of loans made by savings banks and co-operatives has decreased. While 36.7 percent of the loans made by savings banks were targeted towards the German *Mittelstand* in 1972, by 1982 small- and medium-enterprises received only 28.4 percent of the loans. Similarly, the co-operatives allocated almost all of their loans, 91.8 percent, towards the German *Mittelstand* as recently as 1972. However, by 1982, the share of loans made by co-operatives to small- and medium-sized enterprises had fallen by one-third, to 67.4 percent.

Sabel, Griffin and Deeg (1993) report that the increase in loan activities by the big banks to the German *Mittelstand* was the result of a conscious change in bank strategy. According to Sabel, Griffin and Deeg (1993, p. 17), “The first strategy of the big banks was to expand business with the traditional backbone of the German economy – the small- and medium-sized firms known as the *Mittelstand*. The big banks had long provided the *Mittelstand*’s export finance. But the savings and co-operative banking sectors dominated its far more considerable domestically-oriented business. As the autonomy of the large *Aktiengesellschaften* grew, so did the appeal of the *Mittelstand* as a potential clientele group for the commercial banks. The *Mittelstand* relied heavily on bank credit. In the new environment of expanding but volatile

markets, moreover, these firms might reasonably benefit from the kind of information the banks once provided large corporate customers.”

The existence of these financial intermediaries channelling funds into the German *Mittelstand* has resulted in the emergence of mechanisms providing smaller banks with access to long-term, fixed rate funds. These mechanisms include:

1. Special credit institutes which issue bonds on national bond markets to refinance long-term fixed rate loans to small- and medium-sized enterprises;
2. Refinancing and risk pooling mechanisms within both the savings bank and co-operative banks; and
3. Mechanisms facilitating the channelling of a high proportion of long-term savings held at insurance companies to the banks through bank bonds.

Around two-thirds of long-term bank lending to small- and medium-sized enterprises is refinanced through these three mechanisms (Vitols, 1994).

Government finance

There are numerous government policies directed towards providing finance for the German *Mittelstand*. For example, the *Kreditanstalt für Wiederaufbau*, which was originally established following the Second World War to facilitate reconstruction, is devoted towards providing finance to develop the technological competence of the German *Mittelstand* (Bundesminister for Forschung und Technologie, 1985). Firms with annual sales of less than \$590 million are eligible for grants covering up to 40 percent of the costs of developing and implementing state-of-the-art technology. In addition, small- and medium-sized enterprises are exempt from many of the anti-monopoly laws in Germany (*Gesetz gegen Wettbewerbsbeschränkungen*), which helps to facilitate joint marketing, purchasing, and R&D facilities (Bundesminister für Wirtschaft, 1987; and Audretsch, 1989).

Most recently, in order to provide finance to small- and medium-sized enterprises in the *Fünf neue Bundesländer*, or what used to constitute East Germany, the German federal and regional authorities are providing about \$55 billion in finance,

in the form of direct loans, grants, and tax breaks, to people who start new businesses.⁹ The single largest source of this finance, which represents about one-half of the total amount of finance, is a credit fund that Germany created with the \$1.5 billion in Marshall Plan aid it received from the United States in the late 1940s and early 1950s – the European Recovery Program (ERP).

According to *The Wall Street Journal*, the European Recovery Program has had a substantial impact in financing small- and medium-sized enterprises in the *Fünf neue Bundesländer*, “By providing seed money to the nascent private sector, the European Recovery Program fund has played a vital role in reviving eastern Germany’s economy after four decades of ruinous Communist central planning. The \$26 billion in credits it has pledged since 1990 provide cheap financing for more than 150,000 start-up companies, helping to spur investment that exceed \$60 billion and creating or safeguarding three million jobs.”¹⁰

A recent survey sponsored by the federal Economics Ministry showed that half of all small- and medium-sized businesses in eastern Germany have received credits under the European Recovery Program. According to the survey, 40 percent of the small- and medium-sized enterprises receiving finance from the European Recovery Program responded that the finance had been of “vital importance”. And 10 percent of the small- and medium-sized enterprises said that they were able to implement their planned investment only because of the finance obtained from credits provided by the European Recovery Program.¹¹

5. How effective is the German system of finance?

Finance and liquidity constraints

That the financial system of Germany varies considerably from its counterparts in France, the United Kingdom, Canada and the United States is clear. But how effective is the German system of finance, particularly in terms of providing liquidity to small- and medium-sized enterprises?

That capital markets are inherently distinct from other markets has been observed in the economics literature for a long time. And what makes capital markets distinct is the added feature

of risk associated with the demand side of the market. Yet, it has only been recently that attention has been devoted to one of the main implications of this risk inherent in loaning credit – capital markets do not, in fact, always clear, in that supply is not necessarily equal to demand for any given price level. This has moved Alan S. Blinder (1988, p. 196) to observe that, “A few years ago, in revising my graduate course reading list, I looked for some modern literature on liquidity constraints and investment. There was none.”

Since Blinder’s (1988) dismal observation, a wave of studies have been published linking liquidity constraints to capital market conditions. For example, Fazzari, Hubbard and Peterson (1988) found systematic evidence that liquidity constraints do, in fact, tend to be more binding as firm size decreases. Still, after reviewing the empirical literature, Chirinko (1933, p. 1904) concludes that, “While the recently generated evidence points to the importance of financial structure and liquidity constraints, their sources and severity remain open questions.”

Firm size and liquidity constraints

In reviewing the role of financial constraints on investment behavior, Chirinko (1933, p. 1902) observed that, “The investment literature has been schizophrenic concerning the role of financial structure and liquidity constraints.” As Fazzari, Hubbard and Peterson (1988, p. 141) point out, “Empirical models of business investment rely generally on the assumption of a ‘representative firm’ that responds to prices set in centralised security markets. Indeed, if all firms have equal access to capital markets, firms’ responses to changes in the cost of capital or tax-based investment incentives differ only because of differences in investment demand.”

That is, the financial structure of a firm does not play an important role in investment decisions, since the firm can costlessly substitute external funds for internal capital. Under the assumption of perfect capital markets, then, firm-specific investment decisions are generally independent of the financial condition of that firm.

The assumption of perfect capital markets has, of course, been vigorously challenged. And once it is no longer assumed that external capital is a

costless substitute for internal capital. An implication of this view is that the availability of internal finance, access to new debt or equity finance, and other financial factors may shape firm investment decisions.

Which view is correct? According to Fazzari, Hubbard and Peterson (1988, p. 142), "Conventional representative firm models in which financial structure is irrelevant to the investment decision may well apply to mature companies with well-known prospects. For other firms, however, financial factors appear to matter in the sense that external capital is not a perfect substitute for internal funds, particularly in the short run."

There are compelling reasons why liquidity constraints become more severe as firm size decreases. Stiglitz and Weiss (1981) pointed out that, unlike in most markets, the market for credit is exceptional in that the price of the good – the rate of interest – is not necessarily at a level that equilibrates the market. They attribute this to the fact that interest rates influence not only demand for capital but also the risk inherent in different borrowers. As the rate of interest rises, so does the riskiness of borrowers, leading suppliers of capital to rationally decide to limit the quantity of loans they make at any particular interest rate.

The amount of information about an enterprise is generally not neutral with respect to size. Rather, as Peterson and Rajan (1992, p. 3) observe, "Small and young firms are most likely to face this kind of credit rationing. Most potential lenders have little information on the managerial capabilities or investment opportunities of such firms and are unlikely to be able to screen out poor credit risks or to have control over a borrower's investments."

If lenders are unable to identify the quality or risk associated with particular borrowers, Jaffe and Russell (1976) show that credit rationing will occur. This phenomenon is analogous to the lemons argument advanced by George Akerloff (1970). The existence of asymmetric information prevents the suppliers of capital from engaging in price discrimination between more and less risky borrowers. But, as Diamond (1991) argues, the risk associated with any particular loan is also not neutral with respect to the duration of the relationship. This is because information about the underlying risk inherent in any particular customer

is transmitted over time. With experience a lender will condition the risk associated with any class of customers associated with the individual customer.

Larger firms can finance capital expenditures from internal earnings, issuance of equity, or debt. By contrast, small firms are limited in the extent of their internal earnings and their potential for issuing equity. For example, Andrews and Eisemann (1984) found that the flotation costs for non-convertible notes and debentures offered to the public through security dealers fell from \$50 million. The authors note that when the interest expense is added to the flotation costs, the first-year cost of raising funds can easily exceed 30 percent for a small firm.

A series of recent papers has found that liquidity constraints tend to have a greater impact on smaller enterprises than on their larger counterparts in the United States. In particular, small- and medium-sized enterprises are more likely to be unable to obtain capital at market interest rates and therefore be subject to credit rationing. Fazzari, Hubbard, and Peterson (1988) found that smaller publicly traded firms face liquidity constraints and that such smaller enterprises in particular experience difficulties obtaining capital during periods of macroeconomic downturns. That is, the likelihood of a firm experiencing a liquidity constraint decreases along with increasing firm size.

According to Fazzari, Hubbard and Peterson, smaller firms tend to be more dependent upon internal finance or bank loans than are their larger counterparts. Not surprisingly, small enterprises more frequently turn to commercial banks for funding of capital projects. But as Stoll (1984) notes, small- and medium-sized enterprises typically face higher credit costs than do their larger counterparts. For example, a Federal Reserve Board study of loan rates charged by commercial banks on loans made between November 3 and November 7, 1986 found that short-term loans at a fixed rate had an average rate of 11.2 percent for loans of less than \$24,000. However, the rate fell steadily to a mean of 6.8 percent for loans exceeding \$1 million. For loans with a floating rate, the differential was not quite as great. The smallest loans had an average of 9.7 percent, while the largest loans were for 7.5 percent. Very similar

patterns were identified for long-term loans at both fixed and floating rates.¹² Thus, the evidence clearly indicates that the cost of capital tends to fall as the size of the loan increases.

While the large firms in the Fazzari, Hubbard and Peterson (1988) study issued 99 percent of all new equity shares and 92 percent of all new corporate bonds, they accounted for only 74 percent of total manufacturing assets. Because small- and medium-sized enterprises are more dependent upon loans from commercial banks, they are more prone to experiencing a credit crunch, especially during recessions. Fazzari, Hubbard and Peterson (1988) find considerable evidence suggesting that the credit sources for small- and medium-sized enterprises tend to dry up more rapidly during economic downturns than do the credit sources for larger enterprises. at least in the United States.

The Audretsch-Elston Study

Not only is considerably less known about the extent of liquidity constraints in Germany, but in fact there has been a series of recent articles suggesting that the institutional structure of Germany precludes liquidity constraints from occurring.¹³

Edwards and Fischer (1944) have questioned the existence of liquidity constraints under the German system of finance. They have suggested that while the extent of such liquidity constraints may be shaped by the financial institutions specific to each country, the German model of finance is effectively no different from the Anglo-Saxon model of finance. At least some evidence on the relationship between financial constraints and firm size in Germany has been provided by Audretsch and Elston (1994).

In the Audretsch and Elston (1994) study the extent of financial constraints is linked to firm investment behavior through the lens of the Q theory of investment. The Q framework is based on the assumption that in the absence of capital market imperfections (and taxes), the value-maximising firm will continue to invest as long as the shadow price of a marginal unit of capital, Q, exceeds unity.

One of the greatest impediments to measuring the impact of liquidity constraints on investment

behavior across firm size in Germany has been the lack of a reliable and comprehensive panel data set. Audretsch and Elston (1994) employ a data base consisting of a collection of financial reports of German industrial corporations quoted on the German stock exchange over a long period of time.

Audretsch and Elston (1994) find no evidence that the institutional structure of finance in Germany has been able to avoid the impact of liquidity constraints. In particular, they find that the impact of liquidity constraints on investment behavior tends to increase systematically as firm size decreases. Smaller enterprises tend to be more vulnerable to financing constraints than their larger counterparts, even under the German model of finance where the spread between large- and small-firm lending rates is relatively low.

Audretsch and Elston (1994) do, however, find evidence that the German model of finance was able to avoid financing constraints on German enterprises prior to the mid-1970s. A particularly striking feature of this era in West Germany was a relative abundance of cheap credit. This era, however, seems to coincide with the *Wirtschaftswunder*, or economic miracle, in Germany. Since the mid-1970s there is no evidence that German firms, and in particular the smaller enterprises, have been able to avoid finance constraints.

The policy debate

A fierce debate revolving around the viability of the system of finance, particularly with respect to the finance of the *Mittelstand*, has emerged in Germany. As the title of an article in *Business Week* observes, "Suddenly, Germans Love to Hate Their Banks."¹⁴ *Business Week* reports, there is "popular resentment against German banks' power. The flare-up is now turning into a political firestorm."¹⁵ Sabel, Griffin and Deeg (1994, p. 15) confirm this assessment, "The system of German corporate governance is now in ruins."

One of the major concerns about the German system of finance is that it provides efficient finance for investments where it is well understood what is to be produced, who is to produce it, and how the product is to be produced. Thus, the German system of finance may have excelled at providing finance efficiently for the largest

companies in the traditional industries, as well as the traditional *mittelständische* firms producing traditional types of products (Soskice, 1994).

However, the German system of finance is not well equipped for providing finance outside of the traditional industries, that is in high-technology and newly emerging industries. And it is in these emerging high-technology industries that Germany is straggling behind the United States and Southeast Asia. Thus, a recent cover story of *Newsweek* is devoted to, "Why Europe is Losing the Technology Race."¹⁶ As the lead article of this issue points out, "The problems at Siemens are far from unique. They are, instead, spread throughout much of Europe's high-tech landscape, and in particular in what the Germans like to call "telmatik": the rapidly converging fields of computers, telecommunications and television . . . With only a handful of exceptions, in nearly every segment of the so-called information-technology industry, there is a rout underway."

Similar sentiment can be found in Germany, where *Der Spiegel* observes that, "Global structural change has had an impact on the German economy that only a short time ago would have been unimaginable: Many of the products, such as automobiles, machinery, chemicals, and steel are no longer competitive in global markets. And in the industries of the future, like biotechnology and electronics, the German companies are barely participating."¹⁷ And Professor Dr. Horst Albach has warned *The Wall Street Journal* that, "If you look at the chip industry, it's a disaster. And the computer industry has been for many years. Energy technology as such is a disaster."¹⁸

What does the inability of Germany to shift its economic activity out of traditional industries and into new emerging high-technology and high-information industries have to do with the system of finance? As one of the leaders in the German *Bundestag*, or parliament, observed, "A company like Microsoft would never have had a chance in Germany."¹⁹ This is because, "Big German banks and leading industrial companies form a closed cartel that stifles investment in budding entrepreneurs."²⁰

6. Conclusions

The system of finance in Germany clearly differs from its counterpart found in either the United States or Great Britain. A complex system of financial intermediaries may actually have provided more liquidity to the *Mittelstand* in Germany, than their small- and medium-sized counterparts obtain under their respective financial systems in the United States and Great Britain. Certainly the evidence is that during the postwar period, the *Mittelstand* in Germany contributed much more to the competitiveness of its country than did small- and medium-sized enterprises in most other developed industrialised countries.

Still, even under the German system of finance there is at least some evidence that the relationship between access to finance and firm size has been a positive one. This would suggest that small- and medium-sized enterprises have been subjected to liquidity constraints, as in most other developed countries.

The challenge currently confronting the German system of finance is even more urgent – how to modify the financial system in order to facilitate finance for new firms in new industries. That is, while the incumbent system of finance may have been highly efficient in channelling funds to *mittelständische* and large firms alike in traditional industries, it is not at all conducive to financing new ideas that lay beyond the boundaries of traditional industries and enterprises.

Notes

¹ In addition, Bannasch (1993) has examined the role of small- and medium-sized enterprises in East Germany.

² For documentation, see Acs and Audretsch (1993) and Loveman and Sengenberger (1991).

³ "Those German Banks and Their Industrial Treasure," *The Economist*, 21 January, 1995, pp. 77–78.

⁴ The law does not permit the same person to serve simultaneously on both the *Vorstand* and the *Aufsichtsrat*.

⁵ Companies with fewer than 2,000 employees are required by the *Mitbestimmungsgesetz* to maintain no fewer than one-third of the members of the *Aufsichtsrat* as employee representatives.

⁶ "Suddenly, Germans Love to Hate Their Banks," *Business Week*, 20 February, 1995, p. 42. See also, "Business Finance in the U.K. and Germany," *Bundesbank Monthly Reports*, November 1984, p. 36.

⁷ By comparison, British firms finance 24 percent of their investments through bank loans (Edwards and Fischer, 1994).

⁸ See for example Cable (1985).

⁹ "Germans in the East Are Still Getting Boost from Marshall Plan," *The Wall Street Journal*, 26 January, 1995, p. 1.

¹⁰ Ibid.

¹¹ Ibid.

¹² Taken from the United States Small Business Administration, 1987, Table A2.7, p. 91.

¹³ See for example Cable (1985).

¹⁴ "Suddenly, Germans Love to Hate their Banks: Anger over Bank Control of Industry May Reshape the Economy," *Business Week*, 20 February, 1995, p. 42.

¹⁵ Ibid.

¹⁶ "Why Europe is Losing the Technology Race," *Newsweek*, 31 October, 1994.

¹⁷ *Der Spiegel*, number 5, 1994, pp. 82–83.

¹⁸ "Some Germans Fear They're Falling Behind in High-Tech Fields," *The Wall Street Journal*, 27 April, 1994, p. 1.

¹⁹ "Those German Banks and their Industrial Treasures," *The Economist*, 21 January, 1995, pp. 77–78.

²⁰ Ibid.

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