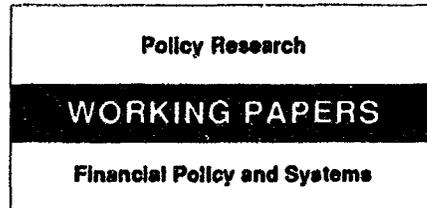


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The Financing of Small Firms in Germany

Christian Harm

In Germany, small banks finance small firms. Active government support and a sophisticated refinancing network effectively overcome financial market imperfections.

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This paper — a product of the Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in the department to study the role and functions of financial institutions. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37664 (May 1992, 35 pages).

In Germany, small firms are financed chiefly by small banks, which are grouped into two systems: the savings banks (Sparkassen) and the credit cooperatives. The government actively supports the financing of investments in small industry — especially business start-ups. Harm explains how small firms are financed in Germany.

Harm contends that small and medium-size firms contribute a lot to the Germany economy. Small firms are not subject to the control institutions — such as: supervisory board seats, proxy voting, and equity holdings — that shape the relationships between large firms and large banks.

Government programs — whether loans from government banks or credit insurance from subsidized credit-guarantee institutions — are all administered through the banking system. The government funds or insures selected projects, but the banks assume the role of the monitor and credit analyst in return for compensation.

The operations of government banks do not have a subsidy component beyond profits forgone. Their loans carry low interest rates but not to the extent that they allow profitable arbitrage with financial investments. The subsidy associated with the credit-guarantee

institution benefits almost exclusively the entrepreneur who would otherwise have been rationed out of the market. Banks benefit only to the extent that overcoming such rationing brings them new business. Therefore, subsidies are not exploited beyond an intended level.

Harm points out that small banks, which are part of a decentralized market structure, overcome imperfections in the financial market by building institutions that supersede the market mechanism. The savings bank and credit cooperative systems have each developed an internal capital market, not unlike those within large banks operating nationwide. Only central institutions participate in the domestic money market, to place the system's excess liquidity or to raise funds to cover the system's deficits. Also, the funding programs of the government banks can be seen as a refinancing mechanism that especially helps small banks. The same is true for rediscountable trade bills.

Harm stresses that the nonmarket means for allocating funds have developed only to counter market imperfections. Market incentives provide the framework for economic decisions. The system is balanced to the extent that the scope for perverse allocation of funds is minimized by mandating joint decisions of potentially conflicting parties.

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OUTLINE

1. Introduction	1
2. The industrial environment of German Banks	2
2.1. Size distribution	2
2.2. Legal incorporation	3
2.3. Governance structures for small firms	5
3. Official support for business start-ups and small businesses in Germany	7
3.1. Statistical notes on entrepreneurial activity	7
3.2.1. Direct subsidies to entrepreneurs	9
3.2.2. The banks of the federal government	9
3.2.2.1. The Kreditanstalt für Wiederaufbau	10
3.2.2.2. The Deutsche Ausgleichsbank	13
3.2.3. The credit guarantee institutions	14
3.2.3.1. The structure of credit guarantee institutions	15
3.2.3.2. Business Volume and Loss Experience	16
3.2.3.3. Who receives the subsidy?	16
3.2.4. Performance of supported vs. non-supported entrepreneurs	19
3.2.5. The financial structure of new ventures	19
4. Issues in the financing of small firms	22
4.1. Market segmentation: small banks finance small firms	22
4.2. The refinancing mechanism of small banks	24
4.2.1. Rediscountable trade-bills	25
4.2.2. The refinancing by government banks	26
4.2.3. "Internal" money markets	26
4.2.4. The decentralization of monitoring bank activity	27
4.3. Trade credit, and trade credit insurance	29
5. Summary and Final Analysis	31

1. Introduction

The purpose of this paper is to familiarize the reader with the mechanisms of financing small and medium-sized industry in Germany. The main issue, however, is not merely size per se, but it is the scope of control that banks can exert over their client firms in their monitoring activities. The two papers on banks' relationships with small and large¹ industry then symbolize the altogether different scopes of control.

While the companion paper on the relationship between banks and large industry focuses on the cliché view of German banking, i.e. that banks own and control industry, the purpose of this paper is to demonstrate how the banking system is involved in the financing of the larger fraction of German industry without having access to these means of control. Hence, this paper aims at dispelling the myth that the relationship of a few large banks with a few large firms is characteristic of German banking.

We will start out in chapter two to provide some statistics that reflect the degree of decentralization of German industry. The chapter is supposed to provide an intuition on the nature of the banks' market, as it influences the nature of the demand for financial services as well as the organizational structure of the banking system. It will be seen that the largest firms contribute about half of the revenues in the economy, and that moreover the corporate charter allowing for the said means of bank control is not very typical in Germany. This motivates a closer look at the nature of financing of small industry.

In chapter three, we will focus on the government's support of entrepreneurial activity, which explains to some extent the decentralization of German industry. We shall discuss and analyze the workings of the two banks of the federal government, KfW and DAB, as well as the activities of the state-wide operating credit guarantee institutions. Chapter four will describe the financing of small firms in more detail, focussing on the refinancing of the lending banks.

On top of a literature survey, the research was supported by numerous interviews with representatives of the various banking groups, and managers of different size firms.

¹See Harm [22].

2. The industrial environment of German Banks

When describing the structure of German industry, we mean to define characteristics of the environment - or the market - of German banks. Primarily, the banking system has to adapt to this environment, although it undoubtedly also takes its share in shaping the industrial landscape.

First of all there is the issue of size. Germany's industrial landscape consists to a large extent of small firms - the so-called "Mittelstand" - which has obvious consequences for the financing: limited or no access to capital markets, greater transparency of the firm's operations, but greater risks due to lacking diversification and greater dependence on management skills.

The legal form of incorporation is likewise important for the financing of a firm. German "Kapitalgesellschaften" feature limited liability, while in "Personengesellschaften" there is always at least one investor liable with his private wealth. The "Kapitalgesellschaften" are further split into AG's (Aktiengesellschaften) with tradeable shares, and GmbH's (Gesellschaften mit beschränkter Haftung), where the trading of the shares is usually restricted in the companies' charters, and even if it is not, transfer of ownership is institutionally more difficult, as the transfer has to be registered and publicly announced.

2.1. Size distribution

Every other year the federal ministry of economics publishes revenue statistics incorporating all revenues liable for VAT. The reporting firms are then assigned to various size classes to yield a size distribution of firms in the entire economy, as well as selected industries or states. Incorporating for example some 2 million firms in 1988, the sample is more or less complete.

Table 1 is taken from the Statistisches Bundesamt [36], and shows that than half of taxable revenues were sold by firms with revenues totalling less than DM 100 million:

Moreover, only half a percent of all firms accounted for 50% of taxable revenues, and as there are economies of scale for loan officers in managing accounts, it means that significant efforts of the lending departments in the banking system must be geared towards financing small firms.

Table 2 shows that this structure of industry is not a recent phenomenon, but that the structure was in principle similar in 1960 so that one can conclude that in the post-war period German banks faced an environment where a large number of small and medium sized firms sought financing for their ventures. This point is stressed in the beginning of this essay, as analyses of the German banking system often focus on large banks in their relationship with large corporations, and the data above suggest that in terms of lending volume the market of the entire industry can be as large as the market of only the large corporations, in terms of labor effort spent on the credit analysis it must be a multiple.

Table 1: Revenue size distribution of German industry in 1988

size class (in 000 DM)	# of firms	Cumu. Perc.	Revenues (in DM Mill.)	Cumu. Perc.
< 50	299,541	14.8	10,357	0.2
< 100	336,304	31.4	24,551	0.8
< 500	821,656	72.1	196,846	5.4
< 1,000	238,193	83.9	167,885	9.3
< 5,000	248,384	96.2	512,984	21.4
< 25,000	60,940	99.2	627,452	36.1
< 100,000	12,805	99.8	585,425	49.9
> 100,000	4,011	100.0	2,129,802	100.0
Total	2,021,824		4,255,302	

Source: Statistisches Bundesamt [36, p.42]

Table 2: Revenue size distribution of German industry in 1960

size class (in 000 DM)	# of firms	Perc.	Revenues (in DM Mill.)	Perc.
< 20	299,019	17.1	4,192	0.6
< 50	471,167	44.1	15,481	2.8
< 100	387,624	66.3	27,686	6.7
< 500	455,872	92.4	93,733	19.9
< 1,000	61,295	95.9	42,728	25.9
< 5,000	55,227	99.1	115,643	42.1
< 25,000	11,582	99.8	115,146	58.3
< 100,000	1,804	99.9	81,623	69.7
> 100,000	505	100.0	214,533	100.0
Total	1,745,095		711,031	

Source: Statistisches Bundesamt [37]

2.2. Legal incorporation

Recently, the "Statistisches Bundesamt" also started disaggregating the revenue statistics according to legal incorporation of the firms in the sample. This is shown in table 3:

Table 3: Size distribution according to legal incorporation in 1986

Form of Incorporation	# of firms	taxable revenues (DM Mill.)	Perc. of taxable revenues	average size (DM Mill.)
Sole proprietors	1,507,308	649,580	15.4	0.431
OHG	164,625	284,332	6.7	1.727
KG	86,883	1,036,550	24.5	11.930
AG	1,597	881,309	20.9	551.853
GmbH	227,612	1,169,254	27.7	5.137
Cooperatives	6,519	85,638	2.0	13.137
Parastatals	5,359	61,009	1.4	11.384
Other	21,921	87,630	2.1	3.997
Total	2,021,824	4,225,302	100.0	2.090

Source: Statistisches Bundesamt [36, p.34]

The first three entries are the "Personengesellschaften". As soon as a sole proprietor accepts a partner in his business, the firm changes to an OHG (Offene Handelsgesellschaft). The next development is a KG (Kommanditgesellschaft), where some partners are liable with their full personal wealth, and others only up to the amount invested in the firm (limited liability). The KG is typically chosen as a corporate form, when the number of partners becomes "large".

Special forms of the KG are the GmbH & Co. KG, where the only partner liable with his full wealth is a GmbH and the KGaA (Kommanditgesellschaft auf Aktien), where the shares with limited liability are traded on the stock exchange. The KGaA is recorded in the statistics of the AG (Aktiengesellschaft), which means that as there is only a recorded total of 1597 AG's, the KGaA cannot be a popular corporate form. Historically, it was developed in the mid 19th century, when a share-issuing AG with limited liability had to be approved by the Prussian government. The KGaA, featuring a fully liable partner, sidestepped the approval process.

Table 3 is supposed to convey similar insights as tables 1 and 2, as the traditional object of studies of the German banking system (see for example Cable [7]) - the AG - has according to the figures above a "market share" of only slightly more than 20%. This is even less than the KG's, the GmbH's or the sole proprietorships and OHG's combined. Of course, this is not an accurate statistic of "market shares", as exports are not included in the VAT statistics, and inclusion of exports would certainly increase the relative importance of the AG, but nevertheless it wouldn't change the fundamental insight that any bank worrying about market share cannot afford the luxury of serving only the large corporations with publicly traded shares.

This notion was confirmed in interviews with bankers from the German big three, who traditionally had these large corporations as their main clientele, and who in the last decades

have made significant efforts to penetrate the market of medium-sized firms. Another topic, where the above statistic is going to be important is when we examine the often cited question of the undercapitalization of German industry. As the AG is the only corporate form with publicly traded shares, it is the only corporate form where the banking system can influence the firms' capitalization. At this point these are not quite 2000 firms.

The AG is also the only corporate form, which is required to have a Board of Directors, unless the company has more than 2000 employees, in which case also the GmbH's and the KGaA's need a Board to ensure labor representation according to the "Mitbestimmungsgesetz" (Codetermination Law). Therefore, the means of control that banks can exert over client firms - equity holdings, proxy voting, and Board mandates - are limited to a small number of firms.

2.3. Governance structures for small firms

To be sure, there is a governance option available for firms where the Law does not mandate a Board. This institution is called "Beirat". Although GmbH's and Personengesellschaften are not required to install a Beirat as a governing body akin to the Aufsichtsrat for the AG, many firms actually make use of this institution. In a sample of 258 firms examined by Richter and Freund, 56% of the firms had such a "Beirat" [34,p.33].² As the definition of the authority is entirely due to the corporate charter, the function of the Beiräte ranges from pure consulting institutions to institutions with authority identical to that of a majority shareholder,³ in which case they perform mostly a control and monitoring function, often even management functions, as in small firms the step from monitoring to decision-making is smaller than in large firms.

However, the consulting function of the Beirat is usually more attractive to firms in the Mittelstand, as they typically lack the financial freedom to install a staff function next to management. Richter and Freund [34] cite a study by Gaugler and Heimburger [19] which found that 60% of the Beiräte they examined were installed for consulting purposes. Important for this study was the finding that only 31 out of 492 Beirat members were bankers, which suggests that there no institutionalized influence of bankers over firms in the Mittelstand. Moreover, in those cases that a banker was in the Beirat, it happened in successful enterprises, which according to the study employs predominantly Beiräte with an advisory function.

What is left of our analysis is that the power of banks does not reach directly to the Mittelstand. While the figures in Harm [22] support the claim that the potential influence of banks over the large AG's is significant, this claim cannot be made for the small firms. Nevertheless, it is true that through control of large corporations, the banks indirectly influence the fate of small firms, as they are at times very dependent on the policies of the large

²Notably, the firms with the worst performance recorded showed the least frequency of Beiräte.

³Westhoff [41,pp.17-20]

corporations, such as their decisions on the provision of trade credit, but the nature and extent of such influence is not known.

Our purpose in this chapter was to show that banks lack the institutional framework to exert control in the firms of the Mittelstand, and that these firms account for nearly than half the domestic revenues of the German economy. We can now go on to discuss the involvement of the banking system to finance these firms.

3. Official support for business start-ups and small businesses in Germany

From the beginning of the modern Germany in the post-war period, the German government had a very positive attitude towards the development and growth of the "Mittelstand". According to Ludwig Erhard, this term does not stand for a collection of small and medium-sized firms, but for an "attitude in the socio-economic and political process" [18,p.54], and he referred primarily to the fact that the firms in the Mittelstand are owner-managed, with the most desirable feature that the owner is fully responsible and accountable for his own decisions. This is essentially the philosophy behind the government programs supporting business start-ups. We want to show in this chapter how the German government supports entrepreneurial activities, and how it makes use of the banking system to achieve its objectives.

3.1. Statistical notes on entrepreneurial activity

Statistics of entrepreneurial activity are plagued by the inherent flaw that small changes in the definition of who counts as an entrepreneur can lead to large changes in the statistics. The broadest conceivable definition is to count any person registering as self-employed as an entrepreneur. This would include approximately 1.8 million people or 8% of the German labor force as self-employed.⁴ Within the class of self-employed people there are large fluctuations. Hunsdiek [25,p.53] shows statistics for Northrhine-Westfalia that identify an average stock of 450,000 to 500,000 self-employed people between 1973 and 1984, but a fluctuation of between 110,000 to 200,000 with a net addition of about 10,000 a year. However, this statistic includes the infamous housewife selling cosmetics from door to door as well as owners of sizeable firms, and thus has to be differentiated some more.

Table 4 shows the changes in the numbers of registered businesses by corporate charter, demonstrating that 75% of the new entries belong to the group of sole proprietorships. This statistic can be viewed as a proxy for the market of entrepreneurs that potentially seek financing.

Of course, the statistics do not reveal how many exits and entries were accounted for by one and the same person, which can be deemed especially large for the sole proprietors so that the actual market size is likely to be smaller. There were nevertheless 13,000 altogether new enterprises in the course of 2 years, 6,000 being accounted for alone by the GmbH's, which has been commented on before.

Another interesting statistic provided by Dahremöller [8,p.98] is the net growth in the number of firms contingent on the number of employees. Between 1977 and 1985, the number of firms grew by 128,000 to 1.36 million, and was overproportionately explained by firms with between 2 and 20 employees, mostly by firms between 2 and 10 employees. This strongly hints at a conducive environment for small business start-ups, and we shall now concentrate on the support mechanism for would-be entrepreneurs.

⁴See Hunsdiek [25,p.36]

Table 4: Business dynamics in Northrhine-Westfalia by form of incorporation between 1980 and 1982

Form of incorporation	# of firms in 1980	exits		entries		net	
		abs.	%	abs.	%	abs.	%
Sole prop.	360,076	70,535	19.6	74,865	20.8	4,330	1.2
OHG and KG	62,283	12,515	20.1	13,497	21.7	982	1.6
GmbH	36,070	8,029	22.3	14,462	40.1	6,433	17.8
AG and KGaA	501	71	14.2	65	13.0	-6	-1.2
Other	5,797	976	16.9	1,365	23.6	389	6.7
Total	464,727	91,926	19.8	104,254	22.4	12,328	2.6

Source: Dahremöller [8], based on a special analysis of the "Statistisches Landesamt" of Northrhine-Westfalia requested by the Institut für Mittelstandsforschung

3.2. The forms of government support

The title of this section mentions government support rather than support of the banking system with a reason. The following discussion will explain the various government initiatives, and show that the banking system more or less has the role of a medium to bring the governmental benefits to the ultimate recipient. We will discuss three different mechanisms by which the government seeks to foster entrepreneurial activities.

First there are direct subsidies to the enterprises in question, which receive some form of cash benefits directly from the government accounts, usually from the state governments. Secondly, there are massive lending programs for business start-ups and small businesses by the two banks of the federal government, the Kreditanstalt für Wiederaufbau (KfW) and the Deutsche Ausgleichsbank (DAB). It will be discussed, in how far their programs constitute subsidies or not, in how far the programs are helping the entrepreneur directly, and in how far they are helping the intermediary commercial bank. Thirdly, there are subsidies in the form of loss guarantees to credit insurance corporations.

3.2.1. Direct subsidies to entrepreneurs

The state governments have implemented various schemes of support for young and/or small enterprises.⁵ The most common ones are

- interest subsidies, either by a state-owned bank making loans carrying low interest rates, or by actual reimbursements of interest costs;
- cost reimbursements for "desirable" investment projects, typically costs in connection with R&D and environmental projects, and investments in structurally weak regions;
- cost reimbursements for consulting expenses in connection with R&D and environmental projects, occasionally also for expenses incurred for normal business consultants by small enterprises. The main programs for subsidies for consulting activities to small firms, especially business start-up consulting, are administered by the federal government in connection with various trade chambers and guilds.

All the programs have in common that they virtually never restrict certain industries from access to them, but that access is limited by size according to revenues and/or number of employees and frequently also by age of the applying firm. Data on the magnitude of these programs were not readily available. One has to add here, however, that a number of entrepreneurs do not apply for these programs. The administering agencies request detailed follow-up information to verify that the original intent of the project which was deemed worth supporting has actually been pursued.

Another golden rule of the government programs is that when it comes to financing a venture, the government makes sure that it never finances 100%, but that there is always private sector funds involved, be it equity provided by the entrepreneur, or loans provided by commercial banks. This also holds for financial arrangements to be discussed below.

3.2.2. The banks of the federal government

After the war, the German government founded two essentially politically motivated banks, the Kreditanstalt für Wiederaufbau to administer the American aid for reconstruction in Europe, and the Deutsche Ausgleichsbank to assist refugees and other people that were unduly disadvantaged by the war in their efforts for economic reintegration.

⁵For a comprehensive list of various government programs to aid the financing of small businesses see Lippert [31].

3.2.2.1. The Kreditanstalt für Wiederaufbau

The Kreditanstalt für Wiederaufbau (Reconstruction Loan Corporation) was founded in November 1948 to administer the use of the Marshall plan and GARIOA⁶ aid, which were provided by the American government out of a fear that economic distress in Western Europe could pull countries into socialism.⁷ Also, the GARIOA was granted by the Department of the Army by the military government in Germany starting 1946 "to prevent disease and unrest" (Weisbrod [40,p.14]), which is to show that the origins of the financing of post-war German industry had only a very remote economic motivation as we know it today.

Likewise, the use of the funds through the KfW in Germany was provided according to standards that with all likelihood would not be classified as normal bank policies today. Hermann Abs [1,p.20] recalled the decisions of those days: to produce a ton of coal cost approximately 80 to 100 Marks, while Germany was obliged by orders of the allied forces to sell the ton of coal for 16 Marks. Which banker today would take the attitude: "First produce more, then we'll talk about the quality of the loans."

The KfW soon took a leading role in the financing of German industry, amounting to a financing of 15% of net real asset formation in the peak year of 1950. Hermann Abs himself [1,p.24] was aware that the workings of the KfW did not represent the ideals of a free market economy sponsored by Ludwig Erhard in those days, but they rather controlled the flow of investments. This is the perennial question of the optimal mix between market and plan. Undoubtedly it was the legal environment pushed through by Ludwig Erhard that further strengthened the development of the German Mittelstand, but without the massive support of the KfW in the core industries and the financing of raw material imports in 1950 and 1951, the small entrepreneurs of the 1950s would most likely not have taken the initiative to the extent they did. These anecdotes from the beginning of the "Wirtschaftswunder" demonstrate that before one worries about programs that intend to avert rationing willing entrepreneurs out of financial markets, one has to make sure that people are willing to become entrepreneurs in the first place.

Correspondingly, the activities of the KfW in its starting years were geared towards the large institutions in the core industries, and were only substituted eventually by programs geared directly to small enterprises, which now account for almost the entire lending volume of the KfW to the German private sector. The other large programs of the KfW include the design and financing of projects in less developed countries as well as the financing of exports.

⁶Government Aid and Relief in Occupied Areas

⁷Although humanitarian motivations were with no doubt a driving force behind President Truman's initiative, Senate and Congress approved the aid bill only in 1948, after the communists had taken over Czechoslovakia, and it was feared that the communists might also win in the Italian elections. According to a study by the State Department, representatives of the US Chamber of Commerce or from Wall Street actually opposed the provision of funds for European reconstruction. (Weisbrod [40,pp.11-12]).

The 1989 annual report of the KfW [29] cites an overall lending volume of 112 billion DM, half of which are classified as long-term investment loans to foster the German economy. A number of these loans went to finance infrastructure investments of the communal administrations, but the majority of loans is geared towards investments of small and medium-sized enterprises. The magnitude can only be estimated by the published flow data: In 1989, loan contracts to foster investments in the German economy amounting to 16.3 billion DM were signed. Out of these 8.5 billion went to the Mittelstand, including 1.2 billion for investments with environmental character. The latter should not be counted as support of small business, as the intent is to overcome the externalities associated with pollution. Still, this means that the Mittelstand accounts for 45% of domestic investment loans, and 28% of the overall lending volume.

Only 1.3 billion DM of this lending volume was provided from ERP programs, the rest of programs originated by the KfW. One has to remember, however, that the development of KfW programs was only made possible by a decision of the German government to not have the ERP funds paid back by interest and principal repayments on KfW loans, but to repay them out of the fiscal budget - a strong decision in favor of continued support of the German economy by the KfW, which otherwise would have ceased to exist, or at least not have the size that it has today.

The ERP program is predominantly geared towards small industry. Loan applicants are firms with less than 200 employees and less than DM 50 million in revenues. The maximum loan amount is DM 300,000, the average DM 100,000. For the KfW Mittelstandsprogramm, the limit is revenues of DM 500 million. 80% of the loans in the Mittelstandsprogramm, which accounted for 40% of the volume in 1989 went to enterprises with less than 50 employees. The lending volume included 1700 loans over DM 460 million to business start-ups that did not qualify for the ERP business start-up program.

An important feature of KfW operations is the way in which it involves the German banking system. First, any program geared to the private sector is handled through the banking system. The entrepreneur inquires at his housebank for KfW funds, and the housebank sends the application to the KfW. Furthermore, the KfW makes sure that it is not financing the entire amount of the investment at stake, but that it only takes a share. DM 7.1 billion in loans to domestic enterprises financed investments of DM 17 billion, leaving the KfW with a share of approximately 41%.

KfW operations involve all bank groups in Germany. The 1989 annual report [29] identifies a shift away from the savings banks and cooperative banks towards the large commercial banks, with the three large banks accounting for over thirty percent of KfW loans in 1989. The savings banks had for the first time dropped below 25%, and the cooperative banks to a share of below 15% in KfW loans. Unfortunately, these are not unbiased statistics, as they refer to the entire lending volume of KfW, and lending to the Mittelstand accounts for only 40%, the rest being loans to communities, exports, and Third World development programs.

The DAB (discussed below) cites the following participation for the ERP business start-up program in 1990: Sparkassen 45.5%, Cooperative Banks 37.1%, large banks 11.6%, and others 5.8%. This clearly hints at a dominant role for the small banks to finance business start-ups, and suggests at least a larger role of the small banks in the KfW's "Mittelstandsprogramm" than the allocations for the overall KfW lending, although arguably not quite as much as the average lending volume of the DAB is smaller as that of the KfW Mittelstandsprogramm (see below).

The most important feature of KfW lending is that the default risk in the loans is borne by the housebank, meaning that there is a decentralization of the monitoring effort. Viewed in this light, an important aspect of KfW operations becomes visible: the funding program for small firms is working like a refinancing mechanism for the banking system. This is a message that wants to be conveyed in more detail in the next chapter: lending to small business is happening to such a large extent in Germany, because of the refinancing mechanisms in the banking system that deviate from the ideal of a decentralized financial market.

This brings up the issue whether there are subsidies contained in the activities of the KfW (the same holds essentially for the Deutsche Ausgleichsbank discussed below). A subsidy is the difference between the price that would be charged in a competitive free market and the price actually charged. This theoretical definition breaks down once a competitive free market is incapable of quoting a price for a good. As we do not know how large of a problem credit rationing would be in the absence of the various government programs to foster the financing of small firms, it is hard to identify the subsidies contained in the interest charged on loans made by the KfW. Typically, the effective interest rate on KfW funds ranges between 1.5% and 2% above the discount rate, which is the cheapest rate available of financing non-financial enterprises, but which may not contain a subsidy component, because the risk for the KfW is limited to a default of a commercial bank so that in the reality of German banking the loans are de facto riskless.

The discussion may focus on what is the correct riskless interest rate. Although the rates on KfW loans tend to be marginally lower than the rates on government paper, interest arbitrage is precluded by the fact that the debtor has to prove that the money has been spent on a real investment project. As the financing of this project also includes bank loans with higher interest rates, the abuse of KfW funds for arbitrage transactions is severely limited⁸. While in the seventies the interest rate on the cheapest official funds (the ERP funds for business start-ups) had at times been at the discount rate, it was in the 1980s usually 1.5% to 2% above it, leaving little room for exploiting subsidies through arbitrage, or arguing that the government banks, which receive one percent less than the official rate from the commercial banks, grossly misprice their essentially riskless lending. Effectively, what the KfW program achieves is to lower the cost of funds for small and medium size firms to a level that is comparable or even slightly below that of large corporations.

⁸Of course, if the investment financed with an official loan is so profitable as to pay off in economic terms before the official loan matures, the gains can be invested at slightly better terms, net of the interest rate risk.

Another means to measure subsidies would be to look at the economic performance of the KfW. In 41 years of operations, the KfW has accumulated retained earnings two and a half times its capital. This corresponds approximately to the devaluation of the DM in 41 years, so that also in real terms, the government has not really lost money with its investment in the KfW. One cannot say this about all government programs. The facts seem to suggest that the KfW has de facto performed exactly like a non-profit organization so that a subsidy primarily consists of profits foregone, but no more than that.

We may also look at the question, whether there is actually a subsidy to the banking system inherent in KfW operations, i.e. that the profits foregone by KfW are profits added to the banking system. Also there it is hard to speak of unreasonable masses of wealth accumulated by commercial banks at the expense of the government banks and ultimately the taxpayer. On most programs, the loan issuing commercial banks receive a fixed spread of one percent on the loan, while for some programs such as the equity substituting loan the spread is only 0.4%. This is much less than the customary interest spread earned by commercial banks. The normal interest spread, however, has to compensate the commercial bank for the interest risk inherent in maturity transformation, which does not apply for the loans passed through for the government banks, which are refinanced with matching maturities. The spread then covers credit risk as well as monitoring and other operating costs, and 1% is sufficient to cover the default risk given a national insolvency rate of 0.7%, and banks average claim recoveries of 84% in bankruptcies. The one percent spread will then surely cover the banks monitoring expenses, but can in the absence of knowledge about the banks marginal investments be called a subsidy to the banks. Hence, the effects of the KfW (and in the same manner this is true for the DAB discussed below) are predominantly a mitigation of the rationing of funds to small businesses, with little if no price subsidies. This corresponds to its economic role mentioned by Hermann Abs [1,p.25]: "to concentrate its activities where commercial banks can't or do not want to".

3.2.2.2. The Deutsche Ausgleichsbank

The Deutsche Ausgleichsbank was founded in 1950 for the reintegration of refugees and expelled people from the formerly German territories in the East into the economic process. It had thus an almost entirely political motivation, although the role of the bank has changed significantly over the last decades.

Being a bank that provided refugees with business start-up loans, it was soon decided that it should concentrate its resources more generally to the financing of all business start-ups. This was again done with funds from the ERP endowment. Not long after its inception, the lending volume from ERP funds exceeded the lending volume associated with refugees from the DDR or Poland.

In 1988, the lending volume associated with this part of the original intent of the bank's foundation contributed only 9% to the overall lending volume of DM 3.1 billion. Almost half

of this volume went to finance business start-ups,⁹ with a notable DM 500 million in equity substituting loans, which are given for a duration of 20 years, enjoy a grace period of 10 years, and are subordinated to all other claimants in case of a default.

The DAB is the main provider of official support for small entrepreneurs. Its average loan is about DM 70,000 as opposed to DM 260,000 for KfW funds. In 1989 both institutions combined provided DM 2.1 billion to finance almost 27,000 business start-ups. As the DAB finances only up to 50% of the applicable investment's costs, it is safe to assume a similar leverage effect of about 150% as for the KfW, which means that both institutions financed investments of DM 5.3 billion for small business start-ups in 1989 alone. It is thus without question that both institutions contribute a very significant share to the financing of the entire market of business start-ups in Germany.

The application mechanism and the risk-characteristics of DAB lending are the same as for the KfW and need no further mention here. The only significant difference is that the equity growth due to retained earnings amounted to only 72% of capital in 40 years of operations, which is less than in the case of the KfW. There is thus more reason to argue that the lending operations of the DAB enjoy a price subsidy than there was for the KfW. However, this has to be contrasted with the fact that the average clientele of the DAB is smaller and presumably more disadvantaged in financial markets than the clientele of the KfW. The ERP funds are also available at a slightly lower interest rate than the funds from KfW programs.

Nevertheless, also the DAB did not operate with financial losses, albeit in real terms the growth of equity did not quite keep pace with inflation. In principle, however, the same analysis holds as in the case of KfW: the existence of price subsidies is hard to prove or negligible if we exclude profits foregone from the analysis. The main impact is again an increase in the aggregate lending volume to the preferred sector: small business start-ups.¹⁰

3.2.3. The credit guarantee institutions

Besides the involvement of the public sector banks, federal and state governments support loans to business start-ups and small businesses with direct subsidies to credit guarantee institutions. In every state, there exists at least one credit guarantee institution - often more with each specializing on a particular industry. The institutions were founded in the 1950s with the motivation that in the young post-war Germany there were few people willing to start a business

⁹See Deutsche Ausgleichsbank [10,12]

¹⁰As a footnote, we would like to add that when one compares the growth of KfW and DAB reserves with the inflationary record of the DM, one must mention the extreme monetary stability in the post-war Germany. All KfW and DAB loans are carrying maturities of 10 years, sometimes more, and they include a prepayment option with no premium charged for it. It must be clear that the extent of government programs through the KfW and the DAB would have taken a completely different form in an inflationary environment. In this sense, monetary stability was a key prerequisite to the German governments Mittelstandsprogramm.

that at the same time had real estate property that they could offer as collateral for bank loans. Hence, they were founded with the explicit goal to overcome credit rationing due to banks insistence on collateral lending, and are an explicit instrument of the German government's Mittelstandspolitik¹¹ to sponsor business start-ups.

3.2.3.1. The structure of credit guarantee institutions

The credit guarantee institutions are all chartered as a GmbH, where the capital is provided usually to a little less than 50% by banks and Sparkassen, and the rest by guilds from all sorts of trades, and trade chambers.

They are non-profit institutions (they pay no dividends) and are tax exempt.

The guaranteed amount covers no more than 80% of the loan amount for a maturity of no more than 23 years and a maximum loan amount of DM 1 million.

They are banks according to the KWG (Kreditwesengesetz) and have to follow the there defined rules for minimum equity requirements. To increase their business volume, they receive an equity like loan from the ERP funds.¹²

Federal government, state governments, and the ERP fund reinsure the losses of the credit guarantee institution. In Hamburg, this is split with 42% for the federal government, 28% for the state government, and 12.5% for the ERP funds, where the claims against the latter are netted with its interest claims.¹³ Hence, the credit guarantee institutions receive at least 70% of their losses from delinquent loans, which federal and state laws classify as a subsidy. The credit guarantee corporation charges an initial 1% on the loan amount, and 0.5% a year for the insurance.

The application procedure for a credit guarantee originates at the housebank, which informs its loan applicant that it cannot make a loan without the reinsurance. The application is then forwarded to the loan approval committee of the credit guarantee institution, which consists of bankers as well as industry/trade experts. The entrepreneur can also make use of consulting expertise in the trade and industry chambers with experts from his own field that advise him.

¹¹Introductory note by Helmut Haussmann to the annual report of the federal umbrella organization of credit guarantee institutions [20].

¹²The ERP funds are classified as loans although they share all the characteristics of equity. Obviously, in a non-profit institution the distinction blurs.

¹³See Bürgschaftsgemeinschaft für Industrie, Handel, und Verkehr GmbH [5].

Obviously it is made sure that no potential competitor has a seat on the loan approval committee, but there is a theoretical potential for abuse of the position in the committee.¹⁴

It is worth mentioning that entrepreneurs sponsored by the credit guarantee institution often get support from all three institutions discussed in this section, as loans from DAB and/or KfW may also be insured by the credit guarantee corporation.

3.2.3.2. Business Volume and Loss Experience

Between 1979 and 1989 the annual guarantee volume of all guarantee institutions amounted to approximately DM 500 million,¹⁵ the stock of guarantees increased from DM 1.5 to DM 2 billion. 58% of the volume was applied to business start-ups or take-overs of existing businesses, in numbers about 2,400 a year. Most of the rest of the volume is guarantees on loans to existing business clients so that they could be classified as follow-up loans.

The average loan amount amounted to about DM 200,000 per business, stressing the focus on small to middle sized business start-ups. Recently, a program was started to guarantee equity investments from Beteiligungsgesellschaften (somewhat like mutual funds, but not investing in the capital market), with a guaranteed equity volume of now DM 60 million.

The loss experience between 1984 and 1988 averaged approximately DM 38 million per year, or about 2% of the guarantee volume. From the business volume figures above, the fact that the average guarantee amount is 70% per loan, and from the guarantee pricing given above, we can deduce that the revenues associated with the guarantees are a one time fee of 1% on a volume of DM 700 million in loans per year, and 0.5 percent per year on a stock of on average DM 2.5 billion in guaranteed loans, totalling approximately DM 20 million per year or about 50% of the losses, which makes the subsidy component apparent.

3.2.3.3. Who receives the subsidy?

In the beginning of this section, let's ask the question, why a bank would wish to invest in a non-profit credit insurance institution that does not pay a dividend. There must be some advantages to the banks to justify this kind of investment. From the balance sheet of the

¹⁴One manager of a credit guarantee institution recalled in an interview three instances of a member of the loan approval committee blocking loan applications of potential competitors in the history of the institution. The respective member was immediately removed from the committee. One may not forget that the bankers on the committee always have an incentive to make a good loan, and are thus a powerful counterbalance to the abuse of the position by an owner of a potentially competing business.

¹⁵The following figures are taken from the 1988/89 annual report of the federal umbrella institution of all credit guarantee institutions [20].

Hamburg credit guarantee institution [5] we can compute that the ratio of total guarantees given to total equity¹⁶ is about 15.

As the banking system is participating in the equity to only one half, the other half being provided by the trade chambers and guilds, every DM given as equity by the banking system results in DM 30 in additional guarantees, which with a factor of 70% is equivalent to DM 42 in guaranteed loans. Lets take a hypothetical example of an uncollateralized KfW loan of DM 42 on which the bank earns Pf 42 (1%) a year. With a 2% loss experience of the credit guarantee institutions, the bank would expect to lose Pf 84,¹⁷ but be reimbursed Pf 60 (70%) by the insurer, yielding an expected result of 18% before monitoring costs.

Table 5: Expected profitability of a DM 42 insured loan vs. a collateralized loan

	insured loan	collateralized loan
Interest spread	Pf 42	Pf 42
Expected gross loss	Pf 84	Pf 30
Insurance coverage	Pf 60	
<u>Recovery from collateral</u>	<u> </u>	Pf 24
Expected yield	Pf 18	Pf 36

The insured loan is compared with a fictitious collateralized KfW loan of equal amount. The loss experience is based on an economy wide bankruptcy frequency of 0.7% (where it is not clear that the KfW sample has the same characteristics) and an average retrieval of 84% of debt obligations by banks in bankruptcies through their collateral.¹⁸ It is clear then that the bank would always prefer to make a collateralized rather than insured loan, all other things being equal. The officially insured loan, however, carries two advantages for the bank: first, the guilds and industry experts are providing free consulting as well as part of the monitoring during the life of the loan so that monitoring costs are lower for the banks. Secondly, the bank profits from the follow-up business of the newly established business relationship.

It is then not unlikely that the bank would be marginally indifferent towards making a collateralized loan to an established client vs. an insured loan to a newly established venture.

¹⁶Total equity consists of capital plus capital surplus plus profit reserves

¹⁷Banks' claim retrieval rate on uncollateralized loans in bankruptcies is with 5% negligably low (source: Gessner [21]).

¹⁸Found in a sample by Gessner [19]

If the net result of the subsidy is new clients entering the market which otherwise wouldn't have, while leaving the banks indifferent to alternative investments, the subsidy is justified.

The question remains, however, why there needs to be a subsidy at all. If the credit insurance institution would charge a 1% fee for its services, it would almost break even. The choice in favour of the subsidy is obviously related to the price elasticity for the entrepreneur's loan demand, and we have to look at the pricing mechanism of the credit guarantee. When the entrepreneur has no sufficient collateral to offer for his loan, the bank informs him that he needs to apply for a loan guarantee, and adds the costs of the guarantee on top of the already negotiated interest rate. The fee charged by the credit guarantee institution is an amount that only flows through the bank

This means that the major cost of the loan guarantee to the banks consists of foregone revenues for the marginal projects where the entrepreneur rejects the insurance premium, and the bank rejects to lend without a guarantee. One banker of a credit guarantee institution told this author that the pricing of the guarantee was purposefully chosen with 0.5% on the loan volume, because it was not viewed as a significant cost component.¹⁹ The one time fee of 1% is anyway no significant deterrent, because in reality few small businesses consider a loan's agio. Hence, the pricing was chosen consciously at a level where the price elasticity is almost zero, which then necessitates the subsidy.

In this situation, a bank will propose a loan to be insured as soon as there is a reasonable chance for acceptance by the loan committee of the guarantee institution, but then half the monitoring effort is transferred to the non-bank members of the loan approval committee. With the numbers of table 5, this may in fact be the decisive argument for a bank to invest in a credit guarantee institution.

Although monitoring the loan during its life is the responsibility of the bank, it is often mentioned²⁰ that the detailed advisory efforts prior to the businesses inception ultimately lead to the relatively low failure rate of 2% in the credit guarantee institutions' loan portfolios. To the extent that banks rely on trade chambers and guilds to provide consulting services to the entrepreneur, the bank actually exploits an externality.

This reasoning essentially meant to show that the subsidy of the government is mostly a subsidy to the entrepreneur by providing access to otherwise unavailable funds (which is not really a subsidy, but correction of a market imperfection). The bank's return is largely due to the externality stemming from the capital and know-how provided by trade chambers and guilds. As they are financed by membership fees from the entrepreneurs, the entrepreneur ultimately pays for the costs of the services provided to him, the banks capturing the value added.

¹⁹In the absence of government guarantees, the credit guarantee institutions would have to charge approximately 2% for their insurance with presumably non-negligible effects on the loan demand.

²⁰Albach [2,p.9]

3.2.4. Performance of supported vs. non-supported entrepreneurs

To analyze the success of government support programs for small businesses, Unterkofler [38] examined a sample including 635 firms supported by the state of Baden-Württemberg (excluding federal support through the KfW and DAB) and 420 firms that started without official support.

What was to be expected, is that the non-supported firms had about 50% more equity when they started out, showing that the programs were actually applied to individuals with less wealth according to program intentions. However, the numbers also show that the non-supported firms experienced a significantly higher profitability in terms of return on equity and profits as percent of revenues. This is not necessarily an argument against the official support programs as they are not supposed to subsidize the projects that promise good economic results from the start, but should rather support the marginal projects. In this sense the data from Unterkofler suggest that the official programs in Baden-Württemberg were applied to the intended audience.

The ultimate success criterion is the survival rate of the sponsored businesses. Unterkofler cites a survey by the Landeskreditbank Baden-Württemberg that shows a failure rate due to insolvencies of 1,418 supported businesses of only 1.8% in the first 6 years of operations, which corresponds closely to the loss experience of the credit guarantee associations. Yet, it is hard to find a comparable statistic of the exit rates of non-supported businesses.

In a sample of 194 firms founded between 1973 and 1981, Hunsdiek and May-Strobl [26,p.111] found an exit rate of 17% until 1983. At the other extreme, the total insolvency rate in the entire economy is 0.7% of all firms regardless of age (Mortsiefer [33,p.150]). As 75% of all insolvencies are usually accounted for by firms younger than eight years old, and they account for significantly less than 75% of the population of all firms, it should be safe to assume that the failure rate of any new business lies above 2%, hence that the governmental business support can be deemed successful in that respect.

On top of the quantitative data, the sample by Unterkofler contained 48% of the respondents, who said that they would not have founded their business without official support, and only 6% said that in hindsight they thought that they could have pursued their ventures with no problems without the official support programs. In conclusion, the data suggest that the official programs meet their goal of overcoming financial market frictions, and that there is no evidence that any institution or set of institutions captures the value of the subsidy without at least contributing to the goals of the programs that may carry a subsidy in the form of costs to the public sector: to eliminate market imperfections in the financing of small and young businesses.

3.2.5. The financial structure of new ventures

Unfortunately, there are no complete statistics on the financing of new ventures, as there are no complete statistics on business start-ups because of the said definition problems. However,

there have been some surveys at the Institut für Mittelstandsforschung that give some idea on the financing of new enterprises.

Albach, Hunsdiek and Kokalj [3] quote a few studies with samples from the trade chambers, the Institut für Mittelstandsforschung and the Ifo-Institut, that suggest that about 50% of all entrepreneurs quote their demand for capital below DM 30,000. Only about 15% had a capital demand of more than DM 100,000. If we contrast this with the average loan amount of DM 63,000 of DAB start-up loans, an average loan amount of DM 200,000 on loans insured by the credit guarantee institutions, and an average loan amount of DM 260,000 for the business start-up loans of the KfW Mittelstandsprogramm, it becomes clear that the official support does not reach the very smallest entrepreneurs. At the same time this means that with 27,000²¹ financed new ventures in 1989, the official programs hold a significant market share in their size bracket, possibly more than 50%, although the exact number is subject to speculation.²²

This is supported by a more detailed study quoted by Albach, Hunsdiek and Kokalj [3,p.43], which included a sample of non-supported businesses with starting capital of about DM 60,000 that were financed with 85% equity, and the rest bank loans, and a sample of officially supported businesses that had an average starting capital of DM 300,000 and were financed only to 15% through their own funds, another 18% through outside equity,²³ almost 50% loans from official programs, and the remaining 17% from bank loans. The same authors quote another study with a sample of 456 firms, in which they found 25% firms with official support programs, but 34% of the sample financed itself completely with own funds, and was thus likely to be very small so that the officially sponsored firms made again almost 40% of the rest of the sample, which may still have included smaller firms than those with official support.

At the end of this chapter, we would like to again make a reference to Table 1 above. The small and medium sized firms contribute a large share to the entire German economy, and this chapter meant to show that it is hard to overrate the importance of official support programs as a determinant of this economic structure. Credit rationing is a major deterrent to business start-ups in the real world of finance. If we exclude the very smallest firms from consideration, as there is no demand for outside capital and they tend to be financed to virtually 100% by owners'

²¹This number is overrated as it includes double counting. There are three entrepreneurial programs at DAB, which can be applied simultaneously to the financing of one new venture. As we showed above that KfW and DAB loans are only refinancing means for the housebank, it is conceivable, and according to a representative of a credit guarantee institution quite common practice, that loans refinanced by KfW and DAB are insured by the credit guarantee institutions. Hence, the true number of officially supported entrepreneurs could range anywhere between 15,000 and 27,000.

²²Albach [2,p.9] estimates that 80% of all entrepreneurs receive official assistance amounting to more than 50% of the starting capital. However, he does not quote a source for the composition of the sample that these figures are based on.

²³This sample must be biased towards firms that received money from Beteiligungsgesellschaften (investment firms), as they do not play a predominant role in the entire economy.

funds, the official programs cater successfully to the needs of the smallest firms with significant demands for external financing. Although no detailed statistics are available, it is that the market share of official programs to finance entrepreneurs with capital needs between DM 50,000 and DM 500,000 may exceed 50%.

Although they are based on extensive government involvement, the existing programs do not contradict the market idea, as virtually no program favors or restricts a particular industry, all programs are based on the concept of cofinancing rather than complete financing, and all programs operate through the banking system with the banks still being responsible for the monitoring of clients and to a large extent also for their selection in the first place. There is no evidence that incentives exist for the banking system to grant loans to unpromising ventures only to exploit existing subsidies. To sum up, the government programs are based on a philosophy of supporting market developments, but without leaving the development of small businesses to chance. They efficiently counteract existing financial market failures.

4. Issues in the financing of small firms

In this chapter, we want to address some issues pertaining to the market environment of banks that finance small firms. Due to the historical evolution of the German banking system, the major sections of the banking system all had their specific clientele of firms, and there was less competition between the banks than the number of different institutions might suggest.

The big three banks were always competing for market share in lending to the large industry, the savings banks (Sparkassen) and credit cooperatives were competing at the lower end of the firms' size distribution, and the regional banks had their main clientele in the group of larger regional businesses, competing at the upper end of the scale with the big three, at the lower end with the savings banks and credit cooperatives. Competition only started to intensify significantly in the early 1960s, but still no firm could switch housebanks instantaneously according to price signals. The decision of a firm to change housebanks is a major alarm signal for the other bank that receives the loan application, which perpetuates the strength of the bank-client relationship.

Competition happens rather with one firm financing itself through different banks, which allows some flexibility with respect to the choice of banks, and obviously it happens in the market for new ventures, as they haven't chosen a housebank yet. Every banker that was interviewed in the course of this project stressed the commitment of his bank in the market for entrepreneurs to secure a larger market share, although one banker admitted that the large number of information seminars for would-be-entrepreneurs had more of a public relation effect than an immediate consequence in terms of profitability and market share.

This only goes to show that despite growing increased competition since the early 1960s, the market structure has not changed significantly in the past three decades. In the following, we would like to provide some information that essentially verifies the market segmentation with respect to the financing of small firms, and we would then like to stress the importance of the mechanisms of refinancing of the small banks, which is pivotal to the large scale financing of small firms.

4.1. Market segmentation: small banks finance small firms

Following a recommendation by the Federal government in 1969, the bank associations publish end year totals of business loans outstanding that do not exceed DM 1 million to any single firm. This is not necessarily the best proxy for lending to small firms, as some large firms draw loans of less than DM 1 million, and some firms would have loans from many banks, and hold a balance with each bank of less than DM 1 million. Nevertheless, it is the only statistic available to estimate the extent of bank lending to small firms.

Bannock [4] compiled the data in table 6 from annual reports of private commercial banks, savings and giro bank associations, and unpublished data from the association of Raiffeisen- and Volksbanks. The data on total advances to businesses originate from Bundesbank publications.

It must be clear that part of the relative decline in the share of bank lending to the Mittelstand is significantly due to the relatively large inflation in the 1970s and the constant cut-off measure of DM 1 million. Using table 1 above, we can put the relative volume of bank lending to the Mittelstand in perspective with the share that the Mittelstand contributes to domestic revenues.

**Table 6: Bank lending to the Mittelstand compared to total bank lending in the 1970s.
(Amounts in DM billion)**

Year	Total bank advances to Businesses	Bank advances to the Mittelstand	Percent of total
1970	216.7	95.6	44.1
1971	252.7	104.2	41.2
1972	297.3	119.6	40.2
1973	324.3	125.7	38.8
1974	345.9	133.3	38.5
1975	352.6	116.2	33.0
1976	380.5	130.7	34.3
1977	406.2	122.2	30.1
1978	436.9	132.9	30.4
1979	488.1	151.3	31.0

Source: Bannock [4,p.239]

Data from the Deutsche Bundesbank [14] suggest that across all examined firms (74,000 in 1980) the ratio of revenues to debt liabilities excluding accounts payable is approximately 400%. This means that the firms included in Table 6 should have revenues not far in excess of DM 4 million, which in Table 1 accounted for approximately 20% of domestic revenues. This suggests that the Mittelstand is financed overproportionately through bank advances.

Furthermore, the share of the different kinds of banking institutions is represented overproportionately by the small Sparkassen and cooperative banks, which is shown in table 7. As the central institutions of the Sparkassen and the cooperative banks concentrate their lending volume to larger firms, and leave the smaller business to the individual savings and cooperative banks, it becomes clear from table 7 that the cooperative banks concentrate most on lending to small firms, followed by the Sparkassen, and finally the commercial banks, which include also the smaller regional commercial banks. All mentioned banking groups have a higher share in lending to the Mittelstand, as private bankers, mortgage banks, hire purchase banks, and branches of foreign banks all virtually do not lend to the Mittelstand.

Table 7: Shares of banking groups in total business and lending to the Mittelstand in 1979

Bank type	share in total business	share in lending to Mittelstand
Commercial banks	21.4	30.7
Savings Institutions	38.3	35.7
of which: Central Giro	16.4	
Savings banks	21.9	
Cooperative banks	14.6	33.5
of which: central inst.	4.1	
Credit coops	10.5	

Source: Col.1 Hennings [23,p.51]; Col.2 Bannock [4,p.246]

As the central institutions of the cooperative and savings banks do virtually not lend to small firms, the data support the statement that small firms are predominantly financed by small banks.

4.2. The refinancing mechanism of small banks

In the ideal financial market, the economic agents direct their own surplus funds to the investment projects with the most promising risk-return characteristics. It is predominantly the lacking information processing capacity of individuals that effectively puts a limit to the optimal portfolio choice under uncertainty, and the banking system as a set of specializing agents is in and of itself sufficient proof for this statement.

Yet, this may not lead us to infer that the banking system as a set of specialists is not constrained by the limits to information processing capacity. A cooperative bank operating close to the Danish border will most likely not be in a position to judge, whether the loan portfolio of a Sparkasse in Munich shows risk-return characteristics that justify an interbank loan to that institution rather than financing the marginal real sector investment in its own neighborhood²⁴.

When the banks themselves face the information problem, the theoretical problem lies in the choice of an institutional arrangement for the refinancing of the banks between the extremes of a fully decentralized interbank market, and a centralized refinancing institution. We shall show below that in Germany the system is - more than in the US or the UK - tilted towards the second alternative. Banks are not so dependent - in comparative terms - on private savings and funds borrowed from a decentralized interbank market to finance their loans.

²⁴This being a direct consequence of banks' costly information gathering (monitoring) activities.

4.2.1. Rediscountable trade-bills

Usually, the cheapest means of refinancing are the rediscountable trade bills, of which there are two types in Germany. In the first case, the purchaser of a good receives a trade bill over the amount of goods sold from his supplier and sells this trade bill to his bank, which can then rediscount it at the Bundesbank. In this case, the trade bill is effectively only credit insurance by the supplier and only appears as an off-balance sheet item in his statements. Alternatively, the purchaser issues a trade bill to the supplier, who in turn hands it to his bank. The first method carries the advantage for the purchaser that he can still deduct the cash discount, if offered.

Thus, the only institution that provides liquidity in this transaction is the Bundesbank itself. This was made Bundesbank policy, as it was argued that the resulting increase of the money supply would be directly linked to a flow of goods over the same amount, which should result in little or no inflationary pressures.

The sequence of liability for the loan originates at the purchaser of the goods. Should he go bankrupt, the commercial bank has a claim against the supplier, and if he also goes bankrupt, the housebank has to reimburse the Bundesbank so that the Bundesbank essentially carries no risk²⁵. As this mode of financing is most often chosen when the supplier is a large conglomerate, and the client a rather small firm, also the participating bank is not confronted by substantial risks, but the risk is almost entirely borne by the issuer of the trade bills - the supplier.

Hence, from an economic point of view it is trade finance in the form of accounts receivable (see section three of this chapter below), but with no liquidity effects. In a perfect capital market liquidity effects do not matter, but the rediscountable trade bills show that there is a demand for liquidity in the real world, presumably for the high shadow costs of capital.

The maturity of the trade bills is usually 90 days, but for the involved bank the period of refinancing is only 90 days minus the typical duration until accounts receivable are settled. After that, the purchaser of the good would have paid from his line of credit. As especially for small businesses the time between purchasing of input to the time of selling the finished good is not much longer than 90 days, the rediscount facility at the Bundesbank particularly improves the liquidity of banks lending to small businesses.

On top of that, the interest rate paid when handing the trade bills to the bank is the best rate available to small businesses, not counting ERP or other government funds. The current volume of trade bills rediscounted at the Bundesbank lies around DM 50 billion, which finances an annual trade flow in excess of DM 200 billion. It is not stated, how much of this volume serves

²⁵Nevertheless, the firms that participate in this sequence have to submit their balance sheets to the Bundesbank for creditworthiness approval, and the Bundesbank uses these balance sheets for its statistics on German industry [14].

to finance small businesses, but interviews confirmed that medium-sized businesses are significant recipients of this form of finance.

4.2.2. The refinancing by government banks

It has been mentioned before that ultimately, the programs of KfW and DAB are not direct loans to the borrower, but are rather made to the borrower's housebank. In this sense, KfW serve to refinance the banking system, as the likely alternative to the present system would not be KfW and DAB lending on their own risk, but the housebank lending the entire amount. The loan procedure is such that after the would-be borrower states his loan demand, and the credit-worthiness is established, the bank looks for possibilities to refinance the loan through the KfW or DAB.

From the published data it is not apparent, how large is the loan stock to the Mittelstand by KfW and DAB, but one can estimate the numbers from the relative contribution of the new loans to the Mittelstand to the entire volume of new lending. For the year 1980, the thus deduced numbers amount to DM 22 billion in the case of KfW, and about DM 4 billion in the case of DAB. Furthermore, the KfW also publishes the relative importance of the different bank groups. In the recent years, the share of the cooperative banks made about 15%, that of the Sparkassen about 25%. From this it follows that lending to cooperatives in 1980 was likely to be above DM 3 billion, to Sparkassen above DM 5 billion. This pales against the approximate DM 50 billion lending to the Mittelstand by each of the respective institutions seen in tables 6 and 7, but it was mentioned in the discussion of the tables that the statistic is overrated as it is likely to include also a number of larger firms. It is then not unlikely that the loans to the Mittelstand of cooperative banks and Sparkassen combined are refinanced up to 15% by the KfW and the DAB, which is an extent that cannot be overlooked.

The amount of refinancing via rediscountable trade bills is more speculative, but the alleviation of the liquidity burden of financing the Mittelstand through Sparkassen and cooperative banks may well total DM 10 billion, which is another 10% of their share in lending to the Mittelstand²⁶. It is conceivable that 25% to 30% of loan advances by the small banks to the Mittelstand are refinanced either by the Bundesbank or by the banks of the federal government, which makes it a significant component that is completely independent of considerations of a decentralized money market.

4.2.3. "Internal" money markets

The above described means of official refinancing of loan advances to the Mittelstand are not the only way the German banking system has institutionalized the alleviation of problems

²⁶A reference point may be that cooperative and savings banks excluding their central institutions had a stock of DM 25.5 billion in rediscountable trade bills in November 1989, which amounts to 30% of all rediscounted trade bills.

Source: Deutsche Bundesbank [15]

associated with rationing small banks out of the interbank market. Historically, it was surely a problem that considerations of creditworthiness and the then available information technology made it impossible for a significant interbank market to develop. The means of communication between small banks in remote parts of the country would most certainly have led to excessive premia for subjective risks, and equally likely credit rationing.

The solution that banks had come up with is the establishment of central institutions with the purpose of allocating surplus funds of some small banks to others with a deficit. In the case of the Sparkassen, this task was taken by the Giro institutions, and the cooperatives had similar regional centers, with the DG bank being the nationwide operating head bank. The purpose of this structure is that the small banks do not borrow at all on an interbank market, but allocate their funds among themselves. Only the central institutions operate on the money market to equalize the net deficit or surplus of the system. Hence, the system is a mix between external market allocation and internally planned allocation of funds.

Historically, the central institutions of the system of savings banks (Sparkassen) originated to place the excess funds of the individual savings banks, which were mandated to place their funds only with prime risks. By contrast, the central institutions of the cooperative sector were created to refinance the individual cooperative banks, which by themselves could not access the capital markets. Today, as both bank groups have advanced to fullfledged universal banks, their central institutions have become much more alike, and among other things facilitate an internal money market.

4.2.4. The decentralization of monitoring bank activity

In the sense of transaction cost economics,²⁷ the costs associated with information gathering on a potential borrower are transactions costs, and are potentially minimized by changing the institutional arrangement in which they appear. Such a case can be made for the task of monitoring bank activity, and ultimately leads to one explanation of economies of scale in banking.

In a decentralized market, everyone has the responsibility to monitor everybody else. The social costs of monitoring can in the sense of transaction costs economic be diminished relative to the reference point of a decentralized market, when the incentive of internal monitoring of branch activity by the headquarters of a widely operating bank can be credibly communicated to the outside world. For example, Deutsche Bank has better means of retrieving information from its branches and providing incentives for prudent management to the branch manager, than an unaffiliated outsider -even if it is also a bank - would have if the branch was a small and independent bank.

²⁷Williamson [42]

Similar to the banking system fulfilling a specialist function to monitor firms' activities, bank concentration fulfills a specialist function of monitoring the activities of small banking units. This is, of course, not only relevant in the context of interbank deposits, but also for the bank supervising agencies, which in turn are being delegated monitoring responsibilities by the community of depositors, although indirectly via the electoral-legal process. In that sense, the creation of central institutions for the system of Sparkassen and cooperative banks serves the same purpose as a merger process in the banking system, it is only faster to implement, and the connection between the member banks is somewhat looser in the sense that the central institutions don't have the same monitoring authority over the member banks as the headquarters of a large bank has over the branches in the system. This effect is mirrored in the impressions received from interviews with bankers that the small cooperative banks are audited much more frequently by the Bundesbankenaufsicht, the German bank monitoring agency, than for example the big three banks.

We have to mention here, why this section is entitled the decentralization of monitoring, although we are reasoning for the centralization of the banking system. In a world of economic agents limited by their information processing capacity, the depositors have an interest in delegating monitoring authority. As the depositors account for a large share of the population, this function traditionally has been performed by the state in a centralized institution, whether the banking system was rather atomistic as in the United States, or concentrated because of a merger and concentration wave. By restricting bank concentration, the US has not only restricted the centralization of the banking system, but - more important - has thereby restricted the decentralization of bank supervision, with dismal consequences expressible in large numbers haunting the federal budget.

Although proof of such a statement would be impossible, this section wants to suggest that the institutional arrangements in the refinancing mechanisms of the Sparkassen and cooperative banks, which are based on loose cooperation as well as inserting another layer of monitoring institutions, at least historically led to more efficient means of refinancing small banks. The creation of central institutions of the small banks, which make an internal money market, was an efficient attempt to adapt to the environment of a system of many small banks that had developed in the 19th century.

With the means of data processing available today, the evolution will likely tend towards more market, and the first development is already visible in the abandonment of the regional middle layer in the system of cooperative banks. Historically, however, we would like to make a case that the reliance on internal capital markets certainly increased the effectiveness of the small banks, and with that also the financing of small businesses. Still today, the small cooperative banks and the savings institutions are financed solely by deposits, the Bundesbank's rediscount facilities, the government's banks, and loans from their central institutions. They do not participate in the money market.

4.3. Trade credit, and trade credit insurance

Trade credit is a prominent means of obtaining financing in German industry. Bundesbank data show that in the 1980s, the level of accounts receivable on firms' balance sheet totalled around DM 300 billion, which is slightly larger than the total of short-term credit of banks to industry.

Concentrating on the liability side of the balance sheet, it becomes clear that trade finance is more important for small firms than for larger ones. Although such data are not precisely available, one can use legal incorporation as a proxy for size, for which data are available. The "Kapitalgesellschaften" (AG, GmbH) account for about 30% of accounts payable in the 1970s against their share of about 47% of domestic revenues²⁸, while the sole proprietors account for 25% of accounts payable against their share of 16% of domestic revenues.

A large extent of trade finance in an economy is often viewed as a sign of an inefficient banking system, as trade credit is expensive, and banks could make easy profits substituting trade credit for lines of credit, i.e. instead of the supplier taking the risk and charging a lot of money, the banks could absorb the risks more efficiently and hence at a cheaper price. Obviously, the price of trade credit depends on the time between the date where the full price is charged, and the date until the bill is finally settled without interest charge. It is not an uncommon practice that this duration may be as long as two, sometimes three months, in which case the cost of trade credit lies only between 8% and 12%.

An interesting issue is the role of trade credit insurance companies, because they absorb the credit risk, but obviously without providing the supplier with liquidity, which would happen in case of a line of credit for the purchaser, in which case the bank would also provide the liquidity. For one thing this illustrates that in an environment with credit rationing and predominantly collateral lending, the shadow cost of capital is much larger than the stated interest rate.

However, the market leader in trade credit insurance - Hermes Kreditversicherungs AG with not quite 50% market share - reported DM 300 million in insurance premia on DM 85 billion total coverage limit²⁹ in 1988. With an actual usage rate of the credit limit of about 30% (estimated by a representative of the industry), this leads to a de facto risk premium of only 1%, and it is not clear, why banks do not compete more aggressively by opening lines of credit that

²⁸Source: Table 3 and Deutsche Bundesbank [14]. The Bundesbank data are collected from the firms' balance sheets, which show their state as of December 31st of a given year. As a lot of firms increase their prices as of January 1st, it is not uncommon for firms to increase their inventory in the month of December at the old prices, and earn an additional spread due to the expected price increase at the turn of the year. As the discount given for timely payment is often valid for 30 days, this means that firms may not have relied on trade finance although their balance sheets suggested such. Hence, balance sheet data overestimate the extent of trade finance.

²⁹See Hermes Kreditversicherungs AG [24,p.16-17]

can be made cheaper than 1% below the interest cost of trade credit, given that the actual loss experience of Hermes was averaging about 40% of insurance premia.

Furthermore, one has to consider that the cost of trade credit insurance is charged to the supplier, which makes it a part of his pricing policy, and the purchaser ultimately pays for his own credit risk. The relocation of trade financing in terms of liquidity and credit risk from suppliers and trade credit insurers to banks opening lines of credit could lead to greater price transparency, ultimately benefitting the consumer.

The theoretical reasons for the efficiency of the regime with trade credit insurers rather than bank finance lie in a different area. The supplier can be assumed to have an informational advantage concerning the purchaser over both banks and trade credit insurers, especially as trade credit insurance is most often used for clients with which the supplier has long-term business relations with. The trade credit insurer can use this informational advantage by writing incentive compatible contracts and insuring only a fraction of the potential loss, which is actually the case. This option is not available to a bank giving a line of credit, which bears automatically 100% of the credit risk so that the potential abuse of bank administered trade credit is larger than in a regime with trade credit insurance.

Therefore, it is questionable, whether banks could secure profitable business away from trade credit insurers. However, as according to a representative of the trade credit insurance industry only about 1/4 to 1/3 of all trade credits are insured, banks could arguably secure profitable business by tapping the market of uninsured trade credit shifting risk from suppliers to the banking system. However, the obvious problem with this scenario is that the bank cannot distinguish between the two cases, which ultimately makes it impossible to reason that the banking system is inefficient because of the extent of trade credit circulating in the economy.

5. Summary and Final Analysis

This essay tried to describe the nature of financing smaller firms in Germany, and the involvement of the banking system. The first objective of the paper was to demonstrate that banks have no institutionalized means of controlling small firms, and that these firms represent a significant share of the economy. Thus, the generally prevailing cliché about German banking is not applicable in their relation to small firms. Secondly, the essay means to have shown that there are two important ways how the rationing of credit to small firms is avoided in the German system.

First, the government takes a very active role to support entrepreneurs directly through subsidies, loans from banks of the federal government, or subsidized credit insurance. The important thing to note here is that the government programs in no way try to direct the flow of investments to preferred industries as would be the case in planned economies, but that the selection of the recipient of the funds is still left to market forces, here the banking system.

Secondly, small firms are historically financed by small banks. It has been shown that these banks themselves had to overcome a problem of credit rationing, which had led to the development of centralized institutions in the systems of cooperative and savings banks. These create an internal money market not unlike that within a large bank. Furthermore, the small banks can exploit other non-market refinancing instruments such as rediscountable trade-bills, or the loans from the banks of the federal government, which are predominantly used to finance smaller firms. Refinancing the small banks with non-market means has helped in the past to overcome a credit rationing problem of the smaller banks. Whether there exist economic reasons still today that make it more efficient for small firms to be financed by small banks rather than branches of the big banks is not clear.

An assessment of the banking system has to put it into perspective with its economic environment. Despite the lack of institutionalized control mechanisms, also the relationships with the smaller firms are to be characterized as house-bank relationships, which tend to be long-term. A prerequisite of long-term relationships is the extreme monetary stability that was enjoyed in Post-war Germany, which only made possible the long-term fixed interest lending as for example by the KfW and DAB to the "Mittelstand". Restrictive legislation or looser central bank policy would arguably prevent the system of long-run financial relationships from having a chance at a test in the marketplace.

The government's attitude towards entrepreneurship deserves further credit. Eliminating financial market imperfections as a barrier to entry for small entrepreneurs strengthens the entire economy, as it allows the large firms to contract out various economic functions that a competitive market of atomistic firms can take better care of. Especially the experience of the financing of small firms seems to be relevant for policy recommendations in developing countries.

A number of developing countries can be characterized as having a rather concentrated industrial structure, and there is more significant involvement of the governments in the economies, which are more geared to controlling the flow of investments. This essay meant to have given an example of public sector options to efficiently unleash the productive potential of the private sector. In Germany, a lot was achieved by the government providing liquidity, while the banks of the private sector bear the risk and are compensated for it. This way, a market inefficiency is overcome at the same time avoiding the mistakes of centralized administration.

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