

## **AICGS/DAAD Working Paper Series**

A Publication of the  
**American Institute for Contemporary German Studies**  
The Johns Hopkins University

AICGS/DAAD Working Paper Series  
**HOW IMPORTANT IS THE VENTURE  
CAPITAL INDUSTRY?  
AN ASSESSMENT BASED ON A  
COMPARISON OF THE U.S. AND THE  
GERMAN FINANCIAL SYSTEMS**  
Dorothea Schäfer

Deutscher Akademischer Austauschdienst (DAAD)  
Research Fellowship Program  
2002

Dr. Dorothea Schäfer, Department of Banking and Finance, Freie Universität Berlin,  
Boltzmannstrasse 20, 14195 Berlin, Germany <dorosch@zedat.fu-berlin.de>.

AICGS would like to thank the Deutscher Akademischer Austauschdienst (DAAD) for funding this AICGS publication as part of DAAD Research Fellowship Program.

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**HOW IMPORTANT IS THE VENTURE CAPITAL INDUSTRY?  
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**ABSTRACT**

This paper challenges the popular hypothesis that the venture capital industry is unique in supporting the creation of new business establishments. I will argue that venture capitalists (VCs) are intermediaries whose value-adding function comes mostly from their expertise in screening, their close relationship with the portfolio firms, and their potential to implement efficient liquidation or restructuring. Such provision of informed capital gives the venture industry a unique status in the United States but not in Germany. Due to banking regulations, Germany's universal banks are well-equipped to perform this function, and they have a long and successful history of providing informed capital. For this reason, German VCs provide services that are a close substitute to the services of German banks. Being a close substitute to already existing services, however, may be a severe obstacle to gaining a significant market share in intermediated start-up finance. Thus, the lack of a significant venture capital industry in Germany is not a sign of an economic disadvantage. It only reflects the fact that similar financial services are organized differently in different financial systems.

**1 INTRODUCTION**

One of the most important factors for sustaining a highly developed economy is an appropriate rate of start-ups. Start-ups are important for spreading new technologies and for marketing new products and services. In the first place, the supply of entrepreneurs in the economy determines whether or not a sufficient number of start-ups emerge. However, since most new firms do not have enough cash flow to finance their own growth opportunities, the rate of start-ups also depends on the availability of outside finance. Having a highly developed venture capital industry with a substantial market share in intermediated finance is often regarded as the most important precondition for the adequate promotion of start-ups and innovation. This paper examines whether this hypothesis is true. Is venture capital indeed unique as a source of highly risky start-up financing and as a catalyst for a high entrepreneurial activity?

In recent years, venture capitalists played a prominent role in financing start-ups in the United States, and, more recently, also in Germany. The supply of venture capital financing, however, depends heavily on the exit channel. It is the readiness of investors to buy the shares in an initial public offering that determines the magnitude of venture capital ready to finance business start-ups. In Germany, the growing importance of venture capitalists in financing business start-ups has one clear source, the start of the *Neue Markt* in 1997. Until mid 2000, this market segment of the *Deutsche Börse* provided a much easier exit than venture capitalists ever had before. The *Neue Markt*, which has, in a short time, become almost a synonym for the growth opportunities of high technology start-ups, was extremely popular with institutional and private investors. But this popularity came to an end when the *Neue Markt* plunged. Consequently, the number of IPOs has decreased dramatically in the last eighteen months.

In the United States, markets plunged as well, and the number of IPOs has also decreased. In both countries, the most important exit channel for venture capitalists is almost closed. Thus, fears are spreading that venture capital funding of young firms will dry up for a long time to

come. Indeed, there are serious signs that venture capital funds have started to ration their potential clients in both countries. Although the venture capital industry seems to be fully aware of the fact that by simply keeping their pockets closed they may forego profitable investment opportunities, venture firms refrain from investing money in new high technology projects simply because they fear experiencing further horrific losses.<sup>1</sup> In some cases, U.S.-based venture firms have even announced that they would rather pay some money back to their limited partners than invest it in new projects (*Washington Post*, May 2002).

Such behavior is a well known and also a well-studied phenomenon in the context of banking (see for example Stiglitz/Weiss 1981, Bester 1985, Besanko/Thakor 1987, Hellwig 1988). But regarding venture financing, rationing has neither been expected nor discussed so far.<sup>2</sup> Sustained rationing by financial intermediaries, however, may result in a lower than optimal rate of start-ups. In the long run, it may even endanger the economy's level of development. As a consequence, researchers and practitioners struggle with the same question of utmost importance: How can the financing of business start-ups be further ensured? This paper seeks to contribute to this debate by examining the role of the venture capital industry in financing business start-ups in different financial systems.

So far, the discussion about the relationship between venture capital and the financial system is dominated by a hypothesis established by Black/Gilson (1998). They argue that a bank-centered financial system is unable to develop an effective venture capital industry since its underdeveloped stock markets fail to deliver an efficient exit channel. Claiming that the lack of a large venture industry is a serious economic disadvantage, the authors implicitly assume that, independent of the underlying financial system, a thriving venture capital industry is the key to new business formation. Jeng/Wells (2000) support this assumption but point out that large stock markets are only a necessary but not a sufficient condition for developing a significant venture industry. They found that other drivers like government policies and how retirement is funded also have a strong impact on the venture industry. In contrast, Beck/Levine (2001) find that having a market or a bank-based system does not matter for industrial growth, the number of new business establishments, or capital allocation.

This paper builds on the work of Black/Gilson and Jeng/Wells but has a different focus. By employing the complementarity approach of financial systems (Schmidt and Hackethal 2000), I explore the reliability of the Black/Gilson assumption and address the question of whether the hypothesis of serious economic disadvantages resulting from a small venture industry is indeed true.

There is no doubt that stock markets are vital for a thriving venture industry.<sup>3</sup> But whether a thriving venture capital industry is decisive for an appropriate rate of start-ups is still an unresolved issue. By dealing with this issue, I explore, in particular, whether the financial system may determine the equilibrium size of the venture capital industry. Does the market share of the

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<sup>1</sup> The latest figure Venture Economics released is an annual average fund return of -32.4 percent in 2001 (*Business Week*, May 27 2002).

<sup>2</sup> Gompers and Lerner (1999) emphasize that venture financing has been highly cyclical in the last thirty years but do not apply the term rationing in their book.

<sup>3</sup> According to Mayer/Schoors/Yafee (2001) 7.5 percent of all VC-backed companies in Germany end up as IPOs. Bascha/Walz (2001) report that German venture capitalists expect an IPO for more than 27 percent of their portfolio companies. They also state that Germany's VCs were highly optimistic with respect to their IPO. They expected considerably higher numbers for the future than they have actually achieved in the past.

venture capital industry indeed have predictive power for the entrepreneurial activity in the economy, as Black/Gilson and Jeng/Wells suggest, or does it just reflect the fact that for a financial system to function properly, it is necessary that its elements are compatible?

The answer to this question is important. If the complementarity of the various system elements shapes the venture industry in an efficient way, the optimal design of policies aimed at sustaining start-up finance may also depend on the financial system. In analyzing the financial system's impact, it seems quite natural to focus on the United States and Germany. Both financial systems are considered to be polar opposites, with the U.S. system being the role model for a market-centered system and Germany being the role model for a bank-centered system (for example Allen and Gale 1999, La Porta, Lopez-de-Silanes, and Shleifer 2000, Stulz 2000).

To build a sound basis for exploring the Black/Gilson assumption, this paper proceeds by providing stylized facts about start-up finance in Germany and in the United States. I focus thereby on the country-specific size and shape of the venture industry, on the market for growth stocks as the most important exit channel, and on the supply patterns of start-up finance in both countries. I then examine why venture capitalists are valuable and address the question of whether the venture capital industry is unique in being able to perform these valuable functions. In particular, I analyze whether the financial system plays a role in defining uniqueness with respect to these functions and how this role is reflected in the stylized facts. Section 6 considers how the economy might be affected if, based on the Black/Gilson assumption, the venture capital industry is fiercely promoted within a bank-based system. Finally, I discuss briefly the implications for future regulatory reforms aimed at promoting start-up finance.

To shape the reader's expectations further, I emphasize that this paper builds on intermediation theory but contains no arithmetic. It refers to empirical facts about start-up finance and the venture industry but does not deal with econometric estimations. The paper's aim is simply to collect bits and pieces that may shed some new light on the venture capital industry's role in a given financial system and to open new routes for further investigation of start-up finance and the role of relationship financing therein.

## **2 THE VENTURE CAPITAL INDUSTRY IN GERMANY AND IN THE UNITED STATES: SOME STYLIZED FACTS**

Start-up finance is mostly intermediated finance. In both countries, the venture capital (VC) industry is but one of several most recognized intermediaries in that particular market segment. Despite that similarity, exploring the size and shape of the U.S. and the German venture industry reveals distinct country-specific features. Most striking is the difference in the investment levels. The industries, however, differ also in their funding, their state of maturity, and in their investment and contracting behavior.

### **2.1 Investment in portfolio firms**

As a source for start-up finance the U.S. VC industry is far more important than the German VC industry (Table 1). For example, in 1997 venture capitalists (VCs) in the United States invested roughly fourteen times more than German VCs. The gap widened in the following years, with a peak in 2000. On a per capita basis, the U.S. investment level was about seven times higher than the German level in that record year. In 2001, investment decreased sharply in the United States, but not in Germany. As a consequence, the gap between the two countries narrowed.

### Venture Investment By Year in the U.S. and in Germany

	Sum (\$mil)	Per 1000 Citizen (\$)	Sum (\$mil)*	Per 1000 Citizens (\$)*	U.S.-Investment x times the German Investment
1990	2914.34	<b>10889</b>	432.9	<b>5275</b>	2.06
1991	2333.40	<b>8718</b>	458.1	<b>5582</b>	1.56
1992	3827.56	<b>14301</b>	475.2	<b>5790</b>	2.47
1993	4565.53	<b>17058</b>	460.8	<b>5615</b>	3.04
1994	3792.89	<b>14172</b>	483.3	<b>5889</b>	2.41
1995	5693.46	<b>21273</b>	486.9	<b>5933</b>	3.59
1996	11386.77	<b>42545</b>	549.9	<b>6700</b>	6.35
1997	14823.33	<b>55385</b>	1089.9	<b>13280</b>	4.17
1998	19843.17	<b>74141</b>	1530	<b>18642</b>	3.98
1999	54499.93	<b>203631</b>	4956.3	<b>60390</b>	3.37
2000	102308.33	<b>382261</b>	4005.9	<b>48810</b>	7.83
2001	37672.50	<b>140758</b>	3991.5	<b>48635</b>	2.89

Source: PricewaterhouseCoopers/Venture Economics/National Venture Capital Association MoneyTree Survey, BVK, Author's Calculations.

\* Standardized exchange rate: \$/€ 0.9/1

Table 1

Despite losing ground in relative terms during the second half of the last decade, the German venture capitalists experienced a considerable boom after the *Neue Markt* was launched in 1997. In 1999, the amount of investment per thousand citizens was more than ten times higher than it was at the beginning of the decade. The numbers for 2001 are still high in Germany, but the most recent quarterly report of the German Venture Capital Association (BVK) indicates that German industry will also cut back its investments dramatically (BVK 2002, quarterly report). Most likely the narrowing gap between the United States and Germany is only a short-term phenomenon.

## 2.2 Maturity and experience

Experience and expertise usually grow with the age of an industry. The history of the U.S. venture industry goes back to 1946. In 1989, 387 U.S. venture firms invested in young companies. By 1999 the number had grown to more than 600 venture firms (Schertler 2001). Experience with the complete venture cycle (funding, investing, exiting) is common among U.S. venture capitalists (Gompers and Lerner 1999, 2001) but is a rather rare phenomenon among German venture capitalists. The first German venture firm was founded only in 1965. By 1983, Germany had eleven VCs. In 2001, the German Venture Capital Association reported 181 members, but this rather high number is due mainly to a boom after 1997. Many German venture firms are fairly young with no history in completing a whole cycle (Bascha/Walz 2001, Jugel 2001). Among those firms that were founded after 1997 are a considerably high number of independent private venture capital firms. Thus, independent private venture firms tend to be

younger and presumably less experienced than subsidiaries of banks or public private equity investors (Schertler 2001).

### 2.3 Sources of Funds and Organization

Comparing the structure of funding shows that banks play an important role in Germany but not in the United States (Table 2). In 1999, 32 percent of all contributions in Germany came from banks. Pension funds as a source of venture financing were absent until 1995 but are now the second most important source. Government money plays a role in financing the venture industry, but it is not particularly important. However, the funding figure may underestimate the importance of public authorities in the German venture capital market. The development of the venture industry has been given a high political priority in the last decade. Bascha/Walz (2001) report that public authorities exert direct or indirect influence in more than 40 percent of the German venture firms.

Approximately one half of all German venture firms are independent firms (Schwertler 2001). Independent venture capitalists are more likely to be organized as a limited partnership than their dependent counterparts. Limited partnerships acquire their investment money basically by selling shares of a closed-end fund. The lifetime of these funds is commonly limited to ten years.

**Sources of Finance for Venture Firms 1999**

Sources Country	Banks	Insurance Companies	Pension Funds*	Corporate Investors	Individual Investors	Govern- ment*	Others**
US		13	23	15	22		27
Germany	32	9	23	9	9	12	6

Source: Schertler (2001)

\*The US-figure comprises private and public funds. It may thus include government funds.

\*\* Others includes endowments and foundations.

Table 2

In the United States, pension funds, endowments and foundations count for half of all contributions to venture capital funding. The joint share of banks and insurance companies is only 13 percent, which is far less than the share of these institutions in Germany. It is also well behind the joint share of corporate and individual investors. U.S. venture capital firms are almost exclusively organized as (independent) limited partnerships.

### 2.4 Investment and Contracting Behavior

The investment behavior of German venture capital firms has changed considerably in the second half of the 1990s. First, investing in information technology (IT) firms has become a primary objective.<sup>4</sup> Second, the relative share of early stage financing in Germany has increased considerably. In 1994, early stage financing counted for approximately 10 percent of the

<sup>4</sup> In 1999, approximately 78 percent of the all venture investments in the United States went to IT-related companies (communication and computer related companies), according to Zacharias/Bygrave/Shepherd (2000).

investment in Germany, compared to 36 percent in the United States (Black/Gilson 1998). In 1999, roughly one third of all investments went to early stage financing in Germany. In contrast, in the United States, this share has sunk to less than a quarter of all investments in 1999. The change in Germany may be primarily the result of the foundation boom after 1997. Germany's young, private, independent VCs show a significantly higher propensity than the subsidiaries of banks to specialize in early stage finance and to invest in communications and computer related technology (Bascha/Walz 2001, Schwertler 2001).<sup>5</sup> Bascha/Walz find also that independent VCs are more profit oriented than dependent firms.

The most common financing instrument for U.S. VCs are convertible securities (Kaplan/Stroemberg 1999). By contrast, German VCs prefer pure equity and mixed debt/equity contracts. Those German firms that employ convertible securities are mostly young and independent (Bascha/Walz 2001).

## **2.5 Exit: venture industry and stock market**

VCs consider IPOs as their most important exit channel. Thus, stock markets able to digest high numbers of IPOs are vital to a thriving venture industry. NASDAQ, the major U.S. exchange for growth stocks, started in 1971. After 1979, the growth rate for new listings increased sharply. Parallel to the sharp increase in numbers, the performance of the new lists has been puzzling. The new lists of the last twenty years are younger and smaller than the new lists of the previous years. They gained a fairly high market capitalization very quickly, but their average profitability steadily declined. New lists also became more likely to be de-listed because of poor performance (Fama/French 2001). The firms that were brought to the market between 1998 and 2000 were particularly young and did especially poorly with regard to profitability, despite their impressive growth rates in market capitalization during this period. The venture capital industry contributed considerably to the increase of new lists. The proportion of all initial public offerings backed by VCs rose from under 10 percent in the 1980s to about 31 percent in the 1990s. It peaked in 1999, with a remarkable 56 percent (Gompers/Lerner 2001).

In Germany, the exit channel IPO was practically non-existent before 1997. After the start of the *Neue Markt*, however, more than 200 companies went public. Forty-five percent of the new lists are venture backed.

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<sup>5</sup> Mayer/Schoors/Yafee (2001) find that sources of funds are significantly related to stages of finance within countries but not across them. Given that the relative importance of sources obviously depends on the financial system, this finding suggests that the financial system employed by a particular country shapes the venture industry in a specific way.

### Venture Backed IPO's at the *Neue Markt*

Year	Number of Venture Backed IPOs	Total	Percentage of Venture Backed IPOs
1997	7	11	64
1998	18	41	44
1999	56	126	44
2000	10	21	48
2001	3	11	27
Total	<b>94</b>	<b>210</b>	<b>45</b>

Source: Franzke (2001), *Neue Markt*

Table 3

The new lists backed by VCs differ considerably from the non-venture backed new lists. Venture-backed firms were less profitable and had lower sales revenues than new lists that are non-venture backed. In fact, on average, VC-backed firms made losses when brought to the market. Their earnings per employee before income and taxes account for €6000, whereas non-venture backed companies earned €26,000. The average sales revenue of VC-backed IPOs is €135,000 per employee compared to €269,000 for non-venture backed IPOs (Franzke 2001). Moreover, VC-backed firms tend to be younger and smaller than the rest of the new lists (Johnson 2001). Since young and small enterprises show a significantly higher propensity to fail than big and established firms, it seems likely that VC-backed companies bear the brunt of delistings on the *Neue Markt* in the near future. In addition, given that German venture firms are fairly young on average, the dropout rate among German VCs may become high, too.

In both countries, the venture industry's purpose is to provide intermediated finance for externally dependent start-up entrepreneurs. In pursuing this aim, the German venture industry is clearly less important than the U.S. industry and has developed a different structure. However, size and shape are of secondary importance. What matters to the health of an economy is the amount and quality of start-up finance supplied by the entire finance industry.

### 3 THE SUPPLY OF START-UP FINANCE

There is an obvious relationship between the supply of start-up finance and the number of new firms. Given that most entrepreneurs need outside finance when they establish their new businesses, the number of start-ups indicates the number of entrepreneurs that successfully applied for external financing. It may thus reflect both the equilibrium demand and the equilibrium supply for start-up finance.

In 1998, 628,900 new employer firms were founded in the United States (Small Business Administration Office of Advocacy 1999). The comparable figure for Germany is 213,000 in 1999 (KfW 2000). The German figure includes newly founded firms with at least one employee as well as unincorporated firms (*Personengesellschaften*), corporations (*Kapitalgesellschaften*), associations (*Genossenschaften*), and any other kind of partnership that is officially registered.

### Entrepreneurial Activity

	Germany 1999	USA 1998
Per 1000 Citizens		
Registered New Firms	2.6	
Employer Firms		2.4
<u>All New Business Formations</u>	<u>7.6</u>	<u>8-9.5</u>

Source: KfW (2000)

Table 4

Surprisingly, this indicator shows no significant difference between both countries on a per thousand-capita basis (Table 4). In Germany, 2.6 new firms per thousand citizens were founded, compared to 2.4 in the United States. Since the German figure includes any kind of economically significant firm and not just employer firms, one might argue that it overstates domestic entrepreneurial activity. However, the scene does not change dramatically if a (presumably) unbiased indicator is considered. With respect to all new business formations, the numbers for Germany and the United States are again in a very narrow range.

Of course, since Table 4 shows only one-year data, it could be interpreted as reflecting only a short-term phenomenon. But if this interpretation is correct, and if prior to 1998 entrepreneurial activity in both countries had differed widely, one would expect that such a gap would be reflected in the proportion of entrepreneurs in the workforce (entrepreneurial rate). This proportion should also differ considerably. However, the opposite is true. The entrepreneurial rate also shows a degree of similarity. In 1998, 10.2 percent of the U.S. workforce consisted of entrepreneurs. The German figure is around 10 percent. The only logical conclusion from these figures is that the similar patterns of entrepreneurial activity shown in Table 4 represent a long-term rather than a short-term phenomenon.<sup>6</sup>

Due to an equally developed economy and higher administrative hurdles in Germany, it is reasonable to assume that, on average, a U.S. entrepreneur does not need more outside capital to set up a new business than a German entrepreneur (Fonseca, Lopez-Garcia, Pissarides 2001). With this assumption, similar levels of entrepreneurial activity in both countries have a straightforward implication. The per capita supply of start-up finance in Germany is unlikely to be smaller than the per capita supply in the United States. This result clearly contradicts conventional wisdom, which stresses the relative shortage of start-up finance in Germany compared to the United States. However, it underpins the relative insignificance of Germany's venture capital industry and its far lower market share in intermediated start-up finance.

The stylized facts obviously suggest the irrelevance of both the financial system and the venture capital industry's market share for the creation of new business establishments. Of course, this suggestion is surprising given the Black/Gilson (1998) hypothesis and the star status of the venture industry in the last years. But it definitely rests on a sound economic foundation, as the next sections will show. After outlining the venture industry's value-adding functions, I will argue that the economic benefits of the venture capital industry are smaller in the German bank-based system than in the market-based U.S. system, since the venture industry's financial services are unique in the United States but not in Germany.

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<sup>6</sup> ZEW calculates 10.8 percent for 1998, while the RWI estimates that in 1997 9.6 percent of Germany's working population had their own firms (KfW 2000).

## **4 HOW DOES THE VENTURE CAPITAL INDUSTRY ADD VALUE?**

Venture capital firms clearly provide capital for start-ups. But this is not the reason why proponents of the market-based system consider it decisive for economic growth and development. The reason behind that perception is the value adding function of the venture capital industry. The venture firms' additional services that accompany the start-up money are considered to be extremely important for the economy to flourish.

### **4.1 Expertise in screening**

Entrepreneurs who approach VCs are often equipped only with an idea and a business plan. Some applicants are not even at this stage. Clearly, not every planned project is worth financing. Since the venture is in such an early stage, asymmetric information between the project's founder (entrepreneur) and the financier is extremely high. The owner may know the quality of the project, but the VC does not. To avoid inefficiencies and future losses of a large scale, VCs have to sort their clients (Kaplan/Strömberg 2001a, Kaplan/Strömberg 2001b).

In principle, sorting can be achieved in two different ways. The VC can either make the entrepreneur reveal her type by offering a menu of separating contracts or by screening the entrepreneurs. For self-selection to work, the VC must have contractual devices at hand that make success cheap but failure extremely costly. Pledged collateral is such a device. The collateral remains with the entrepreneurs if they are successful, but it is taken away at huge costs if they fail. Since failure costs are high, only the entrepreneur with a high success probability would choose a financing contract with collateral. Low quality entrepreneurs would reject backing up their repayment obligations with personal wealth, thereby identifying themselves.

In the case of start-up finance, such self-selecting devices are rather rare. Thus, VCs have to rely on screening. However, only efficient screening spares wasting money on non-valuable start-ups and reduces the likelihood of high quality entrepreneurs being rationed. The VC's expertise in weeding out at the very early stage is, therefore, essential for both the health of the industry and for the overall efficiency of the economy.

### **4.2 Relationship-based intermediation**

Once entrepreneurs have obtained investment capital, their firms become the portfolio firms of the VC. Kaplan/Strömberg (2001a) found evidence that U.S. VCs spend substantial time and effort to assist, advise, and monitor their portfolio firms. Acting in this way means that VCs invest in obtaining proprietary information about their clients. In addition, they increase the profitability of these investments through multiple interactions with the same client firm. Both features define relationship intermediation (Boot 2000).

Both the upfront payment and the fact that future contingencies are not contractible create an adverse incentive for the entrepreneur. After the payment is made, the entrepreneur may adopt strategies that are personally profitable but impose a sub-optimal high risk on the financier (Schäfer 2002). The entrepreneur may also be lazy or hold up the financier by either threatening to decide sub-optimally or to leave the project (Hart/Moore 1994), and, moreover, may secretly consume private benefits at the cost of the financier (Chemla/Habib/Ljungqvist 2002). Repeated interaction with the firm is clearly the precondition for detecting risk-shifting activities, laziness, or the costly consumption of perks (Bergemann/Hege 1998). But to ensure that the entrepreneur really complies with the financier's advice and the decisions following the monitoring activity, the financier has to require control rights. Only control rights allow them a good grip on the company's strategic decision-making and prevent moral hazard (Hellman 2001).

Venture firms engage in far-reaching control activities. They sit regularly on the board of their portfolio firms, and, in some cases, VCs even provide the chairman (Kaplan/Stroemberg 2001a). The ultimate control right is the right to hire and fire the management team (Hellwig 2000). Kaplan and Stromberg (2001a) found evidence that shaping and recruiting the management team is a quite common task for VCs. Lerner (1995) reports that VCs are also involved in management replacement decisions.

Of course, the efficient provision of relationship-based services, in particular, the provision of efficient control, requires proper incentives on the VC's side. Financing contracts are supposed to ensure incentive compatibility by designing cashflow rights that give rise to efficient decision-making. Many economists claim that convertible securities are unique in providing both efficient control (-transfer) and incentive compatibility for the party in charge of control (for example Dessi 1999, Cornelli/Yosha 1999, Hellmann 2001, Bascha/Walz 2000). Essentially, a convertible security is a contract that unbundles cashflow rights and control rights and defines state contingent claims on control and cashflow. It usually consists of a debt claim that is convertible into a common equity claim with full voting power whenever the VC requires the conversion. In this way, it guarantees that control transfers from the entrepreneur to the VC upon the VC's request. In the United States, most VCs employ convertible securities when contracting with the firm (Lerner 1995).

Ex ante screening may not be effective enough to ensure that the VC only finances valuable firms. Moreover, an originally valuable firm may become less valuable during the relationship with the VC due to a radical change in market or financing conditions. Detecting these distressed firms and stopping their present course of action is a further efficiency enhancing function and experienced VCs are well equipped to serve that function. They invest heavily in relationship financing, thereby acquiring the necessary proprietary information to identify a struggling portfolio firm. They also have the means to enforce compliance with their restructuring or liquidation decisions. In addition, VCs usually employ staged financing. Denying further financing forces the junk firm into immediate liquidation. By threatening the denial compliance with the restructuring process in a still valuable firm can be enforced even without using the board and voting rights.<sup>7</sup>

### **4.3 Certifying**

For young firms, an information insider who is considered by outsiders as reliable and capable of certifying the firm's quality is often necessary to lift liquidity constraints. Incumbent venture firms serve as certifying agents at two critical points in their portfolio firms' lives. First, a portfolio firm may need certification if it switches from single source financing to multiple source financing and, second, certification may be important if the firm plans an IPO. The incumbent venture capitalist's stake and its close relationship with the firm signal both the reliability of the VC and the high quality of the firm either to a potentially co-financing VCs or private investors at an initial public offering. The presence of insiders with proprietary information and substantial amounts of their own money at risk may lift the liquidity constraints and provide for further capital to finance the firm's growth.

In sum, venture capitalists with enough experience and the right incentives add value because they are able to:

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<sup>7</sup> Kaplan/Strömberg (2001b) point out that venture capitalists consider their various control rights more as complements rather than as substitutes.

- sort out bad projects in the pre-financing stage;
- invest in a close relationship with the portfolio firm in order to (1) prevent inefficient decision-making, (2) avoid inefficient prolongation of an invaluable firm's life, and (3) restructure valuable firms;
- signal high quality to other intermediaries or to the stock market through both their stake in the firm and their investment in a close relationship.

The value-adding services require proprietary information or expertise that is based on past proprietary information. Thus, it is instantly clear that these services can come from neither arm-length's financiers nor from the public stock market. An intermediary who is willing to face and to manage a highly idiosyncratic risk, and who may rightly expect to cash in on her supporting functions is needed.

The value of these services for start-ups should be immense. Nevertheless, the market share of the venture industry in the German bank-based system lags far behind the share of the U.S. industry. If the financial system is indeed irrelevant to the country's economic development, similar entrepreneurial activity definitely then suggests that, contrary to what many authors claim (Jeng/Wells 2000), the venture capital industry may not be unique. German banks may be a substitute for the venture industry because they are equally capable of performing the particular value-adding functions described above.

## **5 THE FINANCIAL SYSTEM AND THE AVAILABILITY OF SUBSTITUTES FOR THE VENTURE CAPITAL INDUSTRY**

The VCs in the United States are able to exert their value-adding function because they are in a position:

- to contract equity claims or hybrid claims (debt and equity mix, convertibles) in return for the ex ante investment of the firm;
- to take on far reaching control rights;
- to constantly interfere within the firm's decision-making without losing or seriously damaging their claims.

These features make VCs unique in the market-based U.S. system. U.S. commercial banks are neither capable nor willing to do the same. Regulation, on the one hand, and incentives, on the other, prevent U.S. commercial banks from providing informed start-up capital and exerting corporate control. For nearly seventy years, regulation has legally punished equity ownership by banks. Although the Glass-Steagall Act was repealed in 1999, this past regulation may still have an impact on the capability of U.S. banks to provide informed capital. Institutional arrangements that enable banks to exercise control through, for example, proxy votes or membership of supervisory boards, may need more time to develop (Bebchuck/Roe 1998).

Even if U.S. commercial banks had the means to exert control, they definitely lack the incentive to do so. Interference is severely punished under U.S. bankruptcy law. If active involvement in the firm's decision-making can be assumed, debt-holders may lose their priority claims. Since equity ownership or board mandates make it particularly easy to assume active interference, employing such instruments puts banks at risk of damaging their debt claims (Kroszner/Strahan 2001). Abstinence in the corporate control area, however, makes the provision of informed capital impossible. In addition, the U.S. bankruptcy code is highly debtor-oriented.

This bias in favor of shareholders gives the creditors little incentives to acquire restructuring expertise. Consequently, commercial banks are hardly ever actively engaged in restructuring the business of their clients in distress.

The crisis in the saving and loan association may have been one of the triggering factors for the gradual retreat of U.S. commercial banks from the corporate loan sector. When the crisis unfolded, commercial banks responded by sharply cutting back their loan commitments. But even when the worst was over, banks never fully returned to their pre-crisis business model (Hackethal 2000). The consolidation in the wake of the crisis reduced the number of small banks sharply and changed the focus of the whole industry. The surviving commercial banks moved away from their traditional business of directly financing companies into more market-related activities such as promoting and selling mutual fund shares, underwriting commercial papers, and delivering fee-generating advisory services for households and firms (Hackethal 2000). Berger/Udell (1996) and Berger/Kashyap/Scalise (1995) argue that the small banks' specific knowledge in delivering informed loans was destroyed during this consolidation process. In most cases of take-over or bankruptcy, the new party in control would have no interest in preserving and utilizing this specific expertise. Consequently, the provision of informed capital by banks steadily declined.

For regulatory reasons, U.S. commercial banks have always been restricted in their potential to provide informed capital to the corporate sector. But the credit crunch and the new focus of the remaining players in the commercial banking sector may have widened an already existing gap and created the basis for the venture capital industry's broad success in the following years.<sup>8</sup> Since then, traditional banking has steadily declined in the United States, and there is no sign that this trend will be reversed. Thus, the gap did not narrow again as the system recovered. On the contrary, it kept growing due to the refocusing of commercial banking towards market and transaction-based activities. The venture industry is virtually the only source of informed capital and relationship financing in the United States. Thus, U.S. VCs are indeed unique. Most importantly, their services are not a substitute to the banking industry's services but are a much-needed complement.

The situation in Germany is different. Several aspects of the financial system suggest that venture capital is not unique in Germany. First, German universal banks are not and have never been legally restricted in their contracting behavior and in the role they want to play in corporate control. German banks are used to employ a combination of debt and equity claims and combine it with other control instruments, such as board seats and proxy votes. Recently, German banks have started to fiercely promote certain types of hybrid financing for small and medium sized ventures (Arnold 2001). To expand their equity financing, they have also set out subsidiary venture capital organizations.

German banks hardly use convertible securities when financing start-ups. Whether such contracting behavior points directly to economic inefficiency is an open question, despite the claim that convertible securities are unique in shaping the optimal control incentives. At least in theory, it can be shown that non-contingent investor control, combined with an appropriate mix of debt and equity claims, is the optimal solution for a joint effort and control problem (Schäfer

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<sup>8</sup> A serious credit crunch seems to be an important trigger for a thriving venture capital industry. The Scandinavian venture capital industry had a short flourishing period during the Scandinavian banking crisis at the beginning of the 1990s. When Scandinavian banks recovered, however, and their lending constraints gradually disappeared, the venture industry began shrinking. Only the boom on the stock markets in the late 1990s reversed that trend (Hyytinen/Pajarinen 2001).

2002). Moreover, convertibles have been always more common in the United States than in Germany, presumably due to specific banking regulations (see Kalay/Zender 1997 for an analysis of why commercial banks use convertible securities). If the fact that financial institutions are familiar with a particular financing instrument creates a bias in favor of that particular instrument, then the differences in the contracting behavior may simply reflect that U.S. providers of informed capital are used to taking on control via convertibles, whereas German providers are more familiar with employing a mix of debt and equity for that purpose. The observation that German venture capitalists are reluctant to use convertible securities is certainly consistent with the existence of such a path dependency.

Second, German bankruptcy law does not punish banks for interference in the firm's affairs during times of financial distress. Third, German banks have a long history in relationship banking and in playing an active role in corporate control (Gerschenkron 1962). Fourth, German banks are prepared to be involved or even play a leading role in the restructuring of a distressed firm (Elsas/Krahn 2000, Brunner/Krahn 2000). They have a strong incentive to invest in restructuring expertise since the German insolvency code is strongly creditor-oriented. Banks are, in fact, the owners of an enterprise once bankruptcy is declared. For that reason, any proceedings from a restructuring success belong exclusively to the banks as long as their creditor claims are not met. Fifth, the German banking system did not face any serious crises in the last fifty years and – perhaps for that reason – German banks did not refocus their business activities in a dramatic way. Relationship-based financing is still the core business of most German banking institutions, and it seems as though German banks have strengthened their commitment to this specific way of corporate financing (Hackethal 2000, Hackethal/Schmidt 1999).

Every one of the five aspects mentioned above lead to the conclusion that the German financial system did not allow for a gap comparable to the one in the United States, which allowed the venture capital industry to step in. In Germany, the VCs' services are not a complement to the services of the existing banking industry but are a very close substitute. Moreover, the inherent mechanism of a consistent bank-based financial system combined with path dependency may even condemn the German venture industry to be a poor substitute.

Some problems are likely to arise from the fact that the venture industry is a fairly new institution but offers services similar to those of the banking industry. The most important problem venture capitalists face is the problem of adverse selection. Being a close substitute to informed bank finance carries the risk of attracting clients who have already been rejected by banks. Proponents of the promotion of the venture capital industry in Germany might argue that such applicants are not necessarily bad entrepreneurs, since the risk-conservative banks would object to financing even valuable start-ups. It is an open question whether this assumption is correct, but it is definitely no open question that working with previously rejected entrepreneurs calls for highly efficient screening procedures.

Moreover, VCs offer a quick road to the public market. Such promises may be particularly appealing for particularly greedy entrepreneurs whose basic aim is to take the money and run. For this type of entrepreneur, public offerings are the way to pursue their aim without having to fear legal punishment. Once again, expertise in screening is of utmost importance. However, screening by venture capitalist firms may be systematically poorer in a bank-centered economy than in a market-centered economy due to a lack of experience and a smaller caseload.

Failure in ex ante screening may be partly offset by expertise in relationship financing. Gaining proprietary information and control rights helps to sort out bad entrepreneurs ex post and prevents entrepreneurial moral hazard. But being efficient in that respect requires

“managerial expertise and industry knowledge of the financiers” (Kanniainen/Keuschnigg 2001). As with screening expertise, such skills are “difficult and time consuming to acquire” (Gompers and Lerner 1999). Given that German banks have a long history of relationship financing and continue to focus on providing informed capital to the corporate sector, it is likely that such expertise is concentrated in German banks. But due to its immaturity, it is rather unlikely that the German venture industry owns such expertise in quality or in high amounts. Of course, experience and expertise could be brought in from the outside. It seems, however, as if the banking sector has not given up large numbers of experienced personnel to the venture industry in the last ten years (Jugel 2001).

Prior failure in both screening and providing informed capital may create adverse incentive in the later stage of the financing process. The prospect of high profits in an IPO gives venture capitalists a strong incentive to collude with the entrepreneur if they finally detect the venture’s quality. Instead of terminating their financing immediately and communicating the poor quality of the venture to the public, venture capitalists may be tempted to abuse its certifying role. In a concerted action with the entrepreneur, they may actively work on preventing disclosure of its proprietary information until the IPO has occurred and the lockup time is over. As a consequence, the German exchange for growth stock (the *Neue Markt*) may face a more serious “lemons” problem than the NASDAQ.

It might be argued that collusion incentives of that kind are not significant since VCs rely repeatedly on the stock market, and for that reason, they care about their reputation. However, to expect that reputation will restore the “right” incentives and prevent the venture capitalist from inefficient colluding with a low quality entrepreneurs is tricky. First, the very definition of risk includes losses and failures. That makes it particularly difficult for investors to back track value losses in their shares to intended overvaluation when the IPO occurred.<sup>9</sup> Second, reputation as a provider of incentives is ambiguous. In an extremely short-sighted environment, venture capitalists may actually gain reputation if they bring their portfolio companies to the market as quickly as possible, even though such behavior is detrimental for private investors who have no chance of gaining proprietary information about the firm. Thus, reputation seems to be only a weak weapon for fighting false incentives born by shortcomings in screening and relationship financing and fueled by greed.

## 6 SYSTEM-INSENSITIVE PROMOTION OF VENTURE CAPITAL?

In Europe, intense political promotion considerably lowered the entry barriers for VCs in the 1990s (Manigart/Beuselinck 2001). The introduction of the *Neue Markt* created the necessary incentives for German VCs to enter the market. The listing requirements at the *Neue Markt* are less binding than at the *Amtlicher Handel*, providing a relatively easy exit. Investor protection is meant to be ensured by regular disclosure, a commitment to produce accounts either according to U.S. accounting standards (USGAAP) or International Accounting Standards (IAS), and by a lock-up period of inside equity of up to one year. As a consequence of both factors, the German venture industry experienced a boom in the late 1990s. This upswing of the venture industry

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<sup>9</sup> Ironically overvaluation is consistent with underpricing since the notion of underpricing deals only with the difference between the initial offering price and the first notation on the market. Most IPOs at Germany’s *Neue Markt* are considered to be underpriced although many of these shares trade now way below their initial offering price and a considerable number of firms is even bankrupt.

ended abruptly in 2001, when the slide in the stock markets turned out to be more of a long-term phenomenon rather than a short episode.

With lower entry barriers, many new VCs with very little experience entered the market. Soft listing requirements in the stock market may, in fact, reinforce the problem of adverse selection by allowing VCs to cover up own shortcomings and to sell even these companies that are not worth being sold on the public market. And indeed, the venture-backed new list in Germany produced losses on average and had considerably lower sales revenues than new lists that were non-venture-backed. It seems as if German VCs used the *Neue Markt* to a great extent as an opportunity to exit their early-stage projects (Giudici/Palleari 2001). By selling immature firms, VCs often impose the highly idiosyncratic risk of early-stage ventures directly on private investors. Contrary to VCs, however, private investors have no chance of gaining inside information to realistically assess the prospects of the projects.

High standards of investor protection with regard to accounting and transparency are meaningless in such a situation. First, they do not rid IPOs of greedy, low-quality entrepreneurs that are colluding with venture capitalists. This type knows in advance that (costly) compliance with advanced standards is irrelevant, once he has sold most or all of his shares. IPOs of such entrepreneurs could only be stopped by a highly sophisticated screening process prior to IPO. Second, transparency and sophisticated accounting can never be a proper substitute for proprietary information. Without proprietary information, however, assessing the prospect of an early-stage prospect is impossible.

Moreover, it is by no means clear whether the assumption of USGAAP in the *Neue Markt* is in fact favorable for the shareholders of the new lists. From the inspiring work of La Porta et al. (1998, 2000), we know that increasing both creditor and shareholder rights will enhance the availability of outside finance. But we do not know what effect it will have in a given financial system if shareholder protection is increased at the expense of creditor protection. In a bank-based system such substitution may, in the end, backfire against the shareholders. If German banks feel their creditor claims are less protected due to specific disclosure rules in the *Neue Markt* (Johnson 2000), they are presumably less prepared to co-finance the firm after the IPO. Such behavior may not constrain the firms' growth opportunities in a highly developed market-based financial system like that of the United States. Markets would most likely provide the needed additional outside capital. However, in a bank-based financial system such as in Germany, the banks' reluctance to co-finance can have a severe negative impact. The less developed stock market may not be able to provide the additional money, or the money is available only in insufficient volumes. In addition, feeling less protected, banks may also be more prone to withdraw their loans quickly. Easy withdrawals of bank loans, however, may make newly traded firms even more vulnerable to default.

According to Fama/French (2001), the decreasing maturity and the increased vulnerability of new lists is a puzzling phenomenon in the United States as well. The U.S. venture capital industry may have contributed considerably to this development. Moreover, during the stock market boom, entry into the venture capital market was high and parts of the industry became extremely shortsighted. Expectations that a company could go from initial funding to a multimillion-dollar offering of stock in a mere eighteen months (Washington Post, May 30, 2002) are hardly consistent with the notion of providing informed capital until the company is ripe for the public market.

But two factors make the situation worse in Germany. First, due to the more mature nature of the industry, U.S. VCs should on average be more efficient in providing informed capital than

German VCs. Greater efficiency results in less severe quality problems with venture backed new lists. Second, the risk attitude of private investors is different in both countries. German private investors are generally more risk averse than private investors in the United States. Thus, having to realize that a highly idiosyncratic risk has been imposed on them may have less damaging effects for long-term shareholder confidence in the United States than in Germany.

## **7 TOWARDS A SYSTEM-COHERENT SUPPORT POLICY FOR START-UPS**

Start-up finance is extremely risky regardless of the source from which the funding originates. Informed capital, however, is in a position to control and – to a certain extent – reduce the risk. If intermediaries exert that function properly, long-term shareholder confidence will rise. A system coherent support policy should, therefore, be targeted towards strengthening the capability of all start-up financiers to provide truly informed capital. Since in the German bank-based financial system the venture industry is not unique in providing start-up finance, the specific political priority given to the promotion of this industry is hardly justifiable from an economic point of view. For the German venture capital industry, such a target may, in fact, imply increasing the entry barriers instead of decreasing them. It may also aim at mitigating the incentives and opportunities to sell early-stage projects instead of encouraging them.

Increasing the entry barriers, for example, by defining professional quality standards for new VCs and by including the venture industry into the regulatory oversight common for banks and insurance companies may actually shrink the German venture industry. But the industry's capability to provide truly informed capital should increase.

The dramatic crisis in the *Neue Markt* has already made the entry into the public stock market more difficult for financiers and entrepreneurs. To regain investor confidence in that market segment, however, taking regulatory steps that increase the entry barriers even further seems to be the only alternative. Since private investors are not in a position to assess the risk of early-stage projects, the opportunities to sell such projects must be reduced. The reduction could be achieved by simply defining a minimum age for not yet profitable new lists. Even if it sounds mechanical, a minimum age requirement will definitely help to redistribute the risk from the anonymous private investors to the entrepreneur and the capital provider. A complimentary increase of the lock-in period after the IPO imposes even more risk on the entrepreneur and the financier. Increased risk-bearing is likely to keep poorly motivated (greedy) and poorly equipped providers of start-up capital out of the market.

## **8 CONCLUSION**

I have argued that the provision of informed capital gives the venture industry a unique status in the United States but not in Germany. German VCs provide services that are a close substitute to the services of German universal banks. The lack of a significant venture capital industry in Germany's market-based system is not a sign of an economic disadvantage but, rather, reflects the fact that similar financial services are organized differently in different financial systems.

For a financial system to function properly, it is necessary that its elements are compatible. Due to a lack of expertise in the provision of informed capital and poor incentives created at least in part by this lack of expertise, venture financing may be less compatible within the German financial system than bank financing.

My analysis is consistent with the empirical study by Beck/Levine (2001). They find that having a market or a bank-based system does not affect industrial growth and capital allocation.

The result clearly illustrates my point. In providing enough start-up finance, it is more important to have financial institutions that are capable of performing certain valuable economic function and play well together within their system than it is to have specific institutions and a specific financial system. The similar long-run growth rates between the United States and Germany tell the same story. The organization of financial activities is of secondary importance.

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