BANK INFLUENCE, FIRM PERFORMANCE AND SURVIVAL: EMPIRICAL EVIDENCE FROM GERMANY 1970-1986

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Abstract

This paper systematically investigates the impact of bank-influence on firm performance and survival in Germany. Close bank-firm relationships and concentrated ownership which characterize the Japanese and German financial and governance systems are often credited with reducing agency problems and improving monitoring of firm activities, thus improving firm performance and the chances of survival. Empirical results reveal that bank influenced firms have higher survival rates than independent firms. However, firm growth appears to be independent of bank influence and negatively related to firm size.

Keywords: survival; corporate governance; banks; performance, Germany

1. Introduction

Do close bank-firm relationships improve chances of firm survival? Conventional wisdom as outlined by Charkham (1989), Porter (1994), Cable (1985) and others attribute the success and longevity of German firms to the existence of close bank-firm relations in Germany. This argument has been extended to suggest that universal banking systems, of which Germany is a prototypical example, are superior to market economies in ensuring the long-term survival of the firm. Unfortunately, there has been little empirical evidence to either support or refute this notion of bank-based system superiority. This study applies a systematic examination of the impact of bank-influence on firm growth and survival in Germany from 1970-1986.

Results have direct implications for the US policies, as banking reform has recently taken a step towards universal banking by repealing sections of the Glass Steagall Act in order to free banks to perform multiple roles with the firm -which has long been a taboo in market-based systems because of the potential for conflicts of interest. Meanwhile, German regulators, seeing the same glass as half empty, have focused on restricting the power of German universal banks citing abuse of banking powers and potential rent-seeking activities carried out at the expense of the firm.

2. Issues in Corporate Governance and Control in Germany

There is a growing literature which seeks to explore the theoretic and empirical foundations of the effects of the links between corporate governance and the real behavior of the firm, which for Germany include Baums (1999), Carlin and Mayer (2002), Edwards and Fisher (EF) (1994), Elston (1998) and Chirinko and Elston (CE) (1998). CE outlines several distinct characteristics of the bank-firm relationship in Germany which have consequences for the decisions of the firm. In essence, there are primarily three ways that German banks affect the behavior of the firm: through loans to the firm, representation on the firm's supervisory board, and through equity holdings –which in turn enhances bank holdings of proxy votes at annual shareholders meetings. In general though, it is also true that the functioning of the capital and credit markets in Germany strengthens the relationship between banks and firms, because German firms use relatively small amounts of equity capital as compared to U.S. firms.

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Economic theory, as derived by Diamond (1984) and others, clearly suggests that bank-firm relationships reduce inefficient asymmetries in information between banks and firms. If so, this should lead to a reduction in transaction and agency (monitoring and incompatibility) costs for the firm, resulting in benefits to both the firm and the bank in this symbiotic relationship. For the firm there are reduced costs of borrowing and better access to capital, and for the bank, a more complete set of information on which to make loan decisions. According to Cable (1985) these relationships would also allow for improved monitoring and assistance, so that in times of financial distress, the firm has timely support from the bank in terms advice or loan refinancing. In theory then, these factors should improve not only performance but chances of survival for firms with strong relationships to banks.

However in spite of the extensive theoretical literature outlining the benefits of the bank-firm relationship, there is little, and often times conflicting evidence, on their measured impact on the firm. For example, these BFR should also lead to lower costs of capital and better availability of funds to firms. But as CE points out, German firms that are close to banks do not particularly favor bank financing in spite of its advantages. In addition they find evidence that banks play a monitoring role with firms, especially when there is a high dispersion in the firm's ownership structure. On the other hand, at the industry level, EF find a limited ability of banks to even detect financial distress. Further they find evidence that the two most common bank responses to firms in distress were to request additional collateral or withdraw from the firm altogether. Both CE and EF have investigated the scale and scope of German bank-firm relationships in effecting the financial and real decisions of firms and found conventional wisdom frequently lacking in empirical foundation.

According to the related literature, including CE, this research has important implications for bank regulators and policy makers worldwide. Business Week February 1995 p.20 notes there is increasing criticism that bank ties may actually endanger firms. Due to the bank's role in Germany as both a creditor and owner (shareholder) of the firm, banks also have the unique ability to influence or shift risks from creditors to shareholders, which has led to firm deaths in more than one case. Within the last decade Deutsche Bank has linked with a series of firm bankruptcies arising from alleged conflicts of interest with firms. In both the US and Germany banking reform is currently being proposed based on limited information about the relative benefits/harm of the little understood BFR. Without knowing the full impact of these relationships it is impossible to plan effective policy. Understanding the survival patterns of firms is a crucial component in assessing the benefits (costs) of this relationship.

3. Growth and Survival Models

Jovanovic (1982) provides a theoretical model for the positive relationship between firm size and survival. Later empirical studies including Geroski (1995, p.434) find that both firm size and age are correlated with the survival of entrants. Wagner (1994) establishes that firm size effects are indeed important in determining firm survival in Germany. One important contribution of Jovanovic's theory is that new firms face costs that are not only random but also different across firms. Therefore one section of this study tests whether costs of financial distress (in terms of firm deaths) vary systematically across firm groups.

In order to estimate the impact of bank-influence on firm growth we estimate the following model.

$$Growth_{jt}$$
$$= \beta_0 + \beta_1 CF_{jt} + \beta_2 Q_t + \beta_3 Bank_{jt} + \beta_4 Debt_{jt} + \beta_5 Conc_{jt} + \beta_6 \log(Size_{jt}) + \varepsilon_t \quad (1)$$

where Growth is measured as total fixed assets of firm j in period t less the lagged value of total fixed assets over total fixed assets of firm j in period t. CF_{jt} is the net income of the firm or cash flow proxy for firm j in period t, Q_{jt} is the ratio of market to book value of firm j in period t, $Bank_{jt}$ is investment for firm j in period t, $Debt_{jt}$ is the total debt of firm j in period t, $Conc_{jt}$ is the ownership concentration of firm j in period t, and log ($Size_{jt}$) is the log of net sales of firm j in period t.

Cox (1972) defines a proportional hazard model which is appropriate for estimating firm survival controlling for a set of standard factors. These factors will include effects already known to

impact survival including firm age and size. Audretsch and Elston (2002) note that size effects are observable even among these larger stock-issuing firms. Results on survival for 50-250 year time increments for both bank influenced and independent groups of firms are reported at the end of the paper.

In order to determine firm survival rates we use the fact that the hazard rate for an individual firm can be formulated as:

$$r_{ij} = h_{ij,} * \exp(X_t^{ij} * B_{ij}) \tag{2}$$

where r_{ij} is the transition rate from the birth state i to the death state j. The baseline rate of hazard remains unspecified as $h_{ij,}$ and is by definition identical for all transitions. The vector of covariates X_t^{ij} is allowed to vary with respect to time t, so that B_{ij} is the vector of associated coefficients, which influence firm survival.

4. The Data and Variables

This study will employ a panel dataset combining German annual balance sheet data of the firm, with unique firm-level information on the relationships of banks and firm from 1970-1986. From CE we can define a "bank-related" firm as one which has extended ties to the bank as represented by 1) direct ownership of firm stock of over 50% or 2) ownership of 25% and a banker as deputy director or chair of the firm's supervisory board or 3) proxy votes by banks totaling over 50%.[1] The data for this study includes 719 German firm listings across industrial sectors.

Preliminary examination of these firms indicates that 50 failed to survive in the 20 year time frame of the study. We also have detailed information on whether or not 50 of the 719 firms were bank influenced or independent firms. We analyze the set of firms where we have both bank-influence and survival information for the firm.

Table 1. Descriptive Statistics

Variable	All Firms	Bank Influence	Non-Bank Influenced
Bank debt	0128	0.109	0.131
	(0.101)	(0.097)	(0.102)
Total debt	0.782	0.728	0.790
	(0.195)	(0.192)	(0.194)
Cash Flow	0.029	0.030	0.029
	(0.020)	(0.017)	(0.020)
Size	9701.93	6747.21	10148.93
	(25957.65)	(15974.83)	(27126.14)
Observations	1659	210	1449

Standard Deviation in parenthesis below. Growth measured as changes in net sales and Size is measured as log of net sales. CF stands for cash flow and is a proxy for liquidity constraints of the firm. Bank Influence is a composite of the influence of banks on the firm using information on bank equity ownership, proxy voting, and presence and position on the firms supervisory board.

5. Estimation Results

From Table 2 we report estimates of four regressions of growth on various sets of explanatory variables. We see that size is significant and negative in 3 of the 4 regressions supporting the hypothesis that smaller firms grow faster. Q is significant in 3 of the regressions, but with different signs indicating mixed results.

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[1] Our data includes firm level information on firm ownership identity and concentration for every year in the study. The information on supervisory board presence and proxy voting was obtainable for 1986 only.

Table 2. Fixed-Effects Growth Regressions 1970-1986

Variables	1	2	3	4
Q_{t-1}	-0.1316	-0.2784**	-0.2784**	0.2793**
	(-1.150)	(1.776)	(1.776)	(1.784)
CF_{t-1}	8.6447*	2.275	2.275	2.2651
	(3.775)	(0.832)	(0.832)	(0.818)
$Size_t$	1.4e-6	2.8e-5*	2.8e-5*	1.1e-5
	(0.997)	(-2.307)	(-2.307)	(-1.630)
$Concentration_t$	-0.0048	-	-	0.0825**
	(-0.182)			(1.656)
$Bank\_Influence_t$	-0.0471*	-	-	-0.0431
	(-2.241)			(-0.915)
$Total\ Debt_t$	0.5384*	-	-	0.0500
	(2.019)			(0.129)
F-Statistics	3.8990	5.140	5.140	5.0760
p-value	0.0007	0.0001	0.0001	0.0001
R-square	0.0224	0.3904	0.3904	0.3897
Firm Dummies	N	Y	Y	Y
Industry Dummies	N	N	Y	Y
Year Dummies	N	Y	Y	Y
Observations	1029	1018	1018	1018

*Indicates significant at the 0.05 and **0.10 levels. *Growth* measured as changes in net sales and *Size* is measured as log of net sales. *CF* stands for cash flow and is a proxy for liquidity constraints of the firm. *Q* is the ratio of market to book value of the firm, and *Concentration* is the concentration of the ownership structure of the firm. *Bank Influence* is a composite of the influence of banks on the firm using information on bank equity ownership, proxy voting, and presence and position on the firm supervisory board.

It is important to note that when firm, industry, and year dummies are added to the regression, the bank-influence and debt effects lose their statistical significance, whereas concentration becomes positive and significant. This is interpreted as evidence that bank-influence and debt levels are not significant if we control properly for these additional factors. The fact that firm growth increases with dispersed ownership structure may simply indicate that faster growing firms are able to use the equity markets, in this case, in place of debt. However, this finding is also consistent with the interpretation that the equity markets help the firm to grow faster. Overall, there is no evidence to support the hypothesis that bank-influence either helps or hinders firm growth once we control for the firm, industry, and year effects.

In Table 3 we have the results on firm survival rates by bank affiliation. Scanning down the columns over time we see clearly that bank-influenced firms have higher survival rates than non-bank influenced firms. In fact no bank-influenced firm died during the first 100 years of the study, whereas the non-bank firms experienced only a 97% survival rate over the same time period.

Table 3. Survival Rates of Bank Influenced and Non-Bank Influenced Firms

	Survival Rates	
Firm Age	Bank Influenced	Non-Bank Influenced
0-50	1.00 (0.00)	0.973 (0.0189)
50-100	1.00 (0.00)	0.973 (0.0189)
100-150	0.9563 (0.0216)	0.8706 (0.0513)
150-200	0.9341 (0.0305)	0.7169 (0.1134)

Table 3 continued

200-250	0.9341 (0.0305)	0.7169 (0.1134)
Test of Equality		
Test	Chi-squared	**P-value**
Log-Rank	4.2115	0.0401
Wilcoxon	3.4404	0.0636
-2Log(LR)	3.2576	0.0711

Standard Errors in parenthesis. *Bank Influence* is a composite of the influence of banks on the firm using information on bank equity ownership, proxy voting, and presence and position on the firms supervisory board.

Table 4. Proportional Hazard Regression on Bank Influence

Variable	Parameter Est.	Std Error	Wald Chi sq.	P-value	Risk Ratio
Bank Influence	-1.062307	0.54185	3.84364	0.0499	0.346
Testing Global Null Hypothesis: $\beta=0$					
Criterion	W/o cov.	W cov.	Model Chi-square	p-value	
-2 Log L	124.375	120.514	3.861	0.0494	
Score			4.212	0.0401	
Wald			3.844	0.0499	

Bank Influence is a composite of the influence of banks on the firm using information on bank equity ownership, proxy voting, and presence and position on the firms supervisory board.

Table 4 lists the hazard rates on bank-influence as –1.062 indicating a negative and significant effect of bank-influence on the chances of firm death. With a p-value <.05 we clearly reject the null hypothesis that bank-influence does not effect firm survival –it does. And while it is recognized that these results are suggestive of a positive influence of banks, they also suggests that future studies are necessary to check the importance of other factors such as firm age in order to check the robustness of these results. In addition, this methodology and findings do not rule out mutuality in the bank-firm relationship in Germany. That is, it likely to be the case that banks also prefer having strong relationships with firms that are economically sound and therefore more likely to survive. So while these aspects of the governance relationship are clearly not mutually exclusive, they are difficult to separate out empirically. What these findings do clarify is that firms in these relationships, for whatever reasons, do in fact survive longer in Germany than non-bank influenced firms.

6. Policy Implications and Conclusions

Results indicate that bank-influence does not effect firm growth if we control for firm-specific, industry-specific, and time effects in our growth model. However, survival rates are clearly higher for bank-influenced firms. This indicates a net benefit to the survival of the firm attributable to the BFR, supporting the hypothesis that bank-based systems are able to better promote the survival of firms. Empirical findings also underscore the importance of controlling for firm, industry and year effects in estimating the links between corporate governance and performance of the firm.

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