

Dividends, Executive Compensation, and Agency Costs: Empirical Evidence from Germany

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This study provides evidence on the relationship between dividend payout ratios and executive compensation in Germany. Results suggest that the role of dividends in resolving agency issues is relevant not only in market based systems like North America, but also in bank based systems like Germany, where agency issues appear to be partially mitigated by the influence of banks. Bank influence is also found to be positively related to dividend payout ratio and thus consistent with the Free Cash Flow Hypothesis of Jensen (1986) and Easterbrook (1984).

INTRODUCTION

Understanding dividend behavior has been a major research problem for financial economists for decades. Brealey, Myers & Allen (2006), in their well-known text book, have listed the dividend puzzle among the ten unsolved problems in finance. Indeed the comment from Black (1976) viz. "The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don't fit together" (p. 5) is still in many ways an accurate description of the level of our understanding of payout policies.

Recently, Bhattacharyya (2007) proposes an alternative theory for explaining dividends. A testable implication of Bhattacharyya's theory is that we should observe a negative relationship between the dividend payout ratio and executive compensation. Two recent papers (Bhattacharyya, Mawani, and Morrill (2008a and 2008b) (BMM)) have tested the Bhattacharyya (2007) model to establish the existence of an empirical link between the dividend payout ratio and executive compensation in the US and Canada. The purpose of this study is to apply the same model to examine whether this linkage between dividend policy and executive compensation is also valid in a European setting such as Germany, a typical European country which is characterized by concentrated ownership and extensive bank relationships with firms.¹

From a policy perspective it is widely recognized that companies around the world operate within a variety of different institutional environments and corporate governance structures. La Porta, Silanes and Shleifer (1999), for example, compares shareholder relations in 27 countries and concludes that different ownership patterns significantly impact the agency problems of the firm. The results of this research are important because it will establish whether there is a role for dividends in resolving underlying agency issues under alternative governance structures or not. There are two important findings of this study.

First, we find that the predictions from the Bhattacharyya (2007) model are robust, in that this theoretical model predicting a negative relationship between executive compensation and dividend payout ratios also appears to hold in Germany. Prior studies have shown that this negative relationship between executive compensations and dividend payout ratios holds for the U.S. and Canada. This finding is important because it suggests that dividends have an important role in the mitigation of agency costs not only in market based systems as is found in North America, but also in bank based systems such as Germany. Second, we find that bank influence in Germany is positively related to dividend payout ratios. This is consistent with the findings of Short, Zhang and Keasey (2002). Our findings therefore imply that bank influence reduces the impact of hidden information in the sense of Jensen (1986) and Easterbrook (1984), by limiting the extent of free cash flow through higher dividend payout. But even in the presence of bank influence, dividends still appear to have a role in mitigating agency issues.

LITERATURE REVIEW AND MOTIVATION

Dividends have been a puzzle in the finance literature for a long time, resulting in the advancement of several different theories and paradigms to explain the dividend puzzle. These theories include the: 1) *Clientele Theory* (Miller and Modigliani, 1961; Allen, Bernardo, and Welch, 2000), 2) *Signaling Theory* (Bhattacharyya, 1979; Miller and Rock, 1985; Williams, 1988; John and Williams, 1985; Ambarish, John, and Williams, 1987), 3) *Free Cash Flow Hypothesis* (Easterbrook, 1984; Jensen, 1986) and 4) *Catering Theory* (Baker and Wurgler, 2004). More recently, Bhattacharyya (2007) has advanced a theory based on the agency paradigm to explain the dividend puzzle. According to this theory, dividends are used to resolve agency issues in managerial compensation contracts and in equilibrium, dividend payout ratios should be negatively related to managerial compensation. Two studies, Bhattacharyya, Mawani, and Morrill (2008a and 2008b) (BMM), have subsequently examined this link empirically and found that the predicted negative relationship between dividend payout ratios and executive compensations holds in both the US and Canada -two countries with similar corporate governance structures and legal frameworks. Since Bhattacharyya's screening model was developed to theoretically model dividends as a mechanism for resolving agency issues, it is important to test whether under alternative governance structures dividends still have a role in mitigating firm agency issues. In particular, this paper examines whether the inverse relationship between executive compensations and dividend payout ratios, as observed in North America, is valid for Germany. In addition, our paper controls for bank influence, to determine 1) if the German corporate governance system is able to mitigate any of the agency costs and 2) if dividends still remain relevant as a mechanism to resolve agency issues.

There are several aspects of the German corporate governance structure that are different from the system in the US or Canada. One important difference is the general concentration in ownership structure of the firm, and the second is the broad relationship that banks have with firms in Germany.

Specifically, German firms typically have a higher ownership concentration compared to North American firms. This stylized fact is supported by Becht and Roell (1999) which finds that "whereas in the U.S.A. over 50% of companies have a largest shareholder who holds less than 5% of the shares, in Austria and Germany there are virtually no such companies" (p. 1051). Or, in the words of Gugler and Yurtoglu (2003), "Salient features of the corporate governance system in Germany involve pyramiding, cross-shareholdings, and large controlling stakes of families, financial and industrial firms, and the state." (p. 735).

It is widely believed that banks have a degree of control in the German corporate governance system that extends beyond the traditional boundaries of the traditional creditor-lender relationship. As detailed in Chirinko and Elston (2006), the primary spheres of influence of banks on firms in Germany is through 1) bank share ownership and associated voting rights accrued from both direct ownership and collection of proxy votes, 2) through bank representation on the Supervisory Board (SB) which hires and fires management (bankers also often act as chair or deputy chair of the Board) 3) through bank lending and 4) share underwriting. As shareholders, bank representatives regularly participate at annual shareholders meetings, and are frequently represented on the firm's SB with one or more representatives.² This

provides a direct line of influence between banks and firms that goes beyond the traditional Anglo-Saxon creditor-firm relationship. Thus, banks can have a significant influence on the decisions of the firm in Germany.

THE EMPIRICAL MODEL

Following the empirical model outlined in BMM, we start with a regression model which excludes any control variable, and then add important control variables to assess the statistical significance of these effects on the firm's dividend payout ratios.

FIGURE 1 RETENTION EQUATION

$$LNRETEN = \beta_0 + \beta_1 TOTMSAL + \beta_2 CDIVID + \beta_3 LNINCOME + \varepsilon$$

LNRETEN is the Natural log of the retention ratio. Retention ratio is defined as 1-Payout Ratio; TOTMSAL is the total management salary. CDIVID is the value of dividends paid to the common shareholders and LNINCOME is the Natural log of the net income. These variables are all measured in millions of DM.

When log transformations were used we ensured that only those cases with positive arguments were included. Following BMM our predictions for the model's coefficients are as below:

FIGURE 2 MODEL PREDICTIONS

$$\beta_1 > 0; \beta_2 < 0 \text{ and } \beta_3 < 0$$

We also estimated regressions which controlled for the firm's debt equity ratio, Tobin's Q, capital expenditure, number of members of the firm's governing board, age of the firm, a ranked measure of the firm's concentration of ownership, a dummy variable for bank influence on corporate governance, as well as industry and year dummies. Our regression model with all the control variables is defined below:

FIGURE 3 ESTIMATED RETENTION EQUATION WITH CONTROL VARIABLES

$$LNRETEN = \beta_0 + \beta_1 TOTMSAL + \beta_2 CDIVID + \beta_3 LNINCOME \\ + DEBTEQUT + Q + CAPEXP + BOARDNO \\ + AK + AGE + BANKINF2 + YEAR DUMMIES + INDUSTRY DUMMIES + \varepsilon$$

Where DEBTEQUT is the total firm debt to equity ratio. Q is the market to book value of the firm or Tobin's Q. CAPEXP is the capital expenditures of the firm. BOARDNO is the number of members of the management board. AGE is the age of the firm in years in 1986. AK is a ranked measure of the firm's concentration of ownership with 5 being the highest concentration and 1 being the lowest concentration. BANKINF2 is a dummy variable which is set to 1 if there is bank influence on the firm and 0 otherwise. For details of the construction of the bank influence variable see Chirinko and Elston (2006). We used Tobit in estimating the regression coefficients because the left hand side variable is a censored variable with an upper bound of zero.

DATA

This study uses various sources of data which are detailed in Elston and Goldberg (2003). First we use firm-level database that tracks the financial performance of a comprehensive set of German firms from 1970 to 1986. We also use various other data sources, including Commerzbank's *Wer Gehört zu Wem?* (*Who owns Whom?*), *Handbuch der Grossunternehmen* (*Handbook of Large Firms*), *Leitende Männer und Frauen der Wirtschaft* (*Leading Men and Women of Germany*), *Salings Aktienführer*, and various annual reports of the firm. We needed to use several sources of data in order to attempt to comprehensively measure the influence of banks on German corporate governance. We operationalized this information by defining a dummy bank influence variable. A firm is characterized as bank influenced (rather than an independent firm) if a) the bank owns more than 25% of the shares of the firm and no one else owns more than 25%, or b) if total votes of banks at shareholder meetings (including proxy votes) were greater than 50%, or c) if total votes exercised at shareholder meetings were between 25% and 50% and the chair of the Supervisory Board is a banker.³

We used all firms for which the appropriate data were available. The number of firms in the sample is fairly representative because the German exchange is considerably smaller than its American counterpart. For example in 1980 there were only about 459 listed firms incorporated as AG and KgaA.⁴ Descriptive statistics for key variables are given in Table A1 and correlation coefficients in Table A2 of the Appendix A.

EMPIRICAL RESULTS AND DISCUSSION

Empirical Results

We can see from the regression results in Table 1 that the testable predictions of the theory developed in Bhattacharyya (2007) are validated for Germany. These results are consistent with those obtained earlier by Bhattacharyya, Mawani, and Morrill (2008a and 2008b) for US and Canada. Specifically we can see that the signs of the coefficients of the Tobit regression are positive and statistically significant for managerial salary or TOTMSAL, and negative and statistically significant for dividend payout or CDVID and firm income or LNINCOME, as predicted by the theory.⁵ These results hold even when we control for various other plausible causal effects. In addition, both bank influence or BANKINF2 and concentration of ownership or AK are negative and statistically significant, indicating that both ownership concentration and bank relations impact the firms' retention policies.

To examine the robustness of our results we repeated our regressions with average management salary and also with three different constructs for bank influence. Our results were qualitatively similar to the results reported in Table 1, and thus our findings are at least to some degree robust to specification errors.

TABLE 1
DETERMINANTS OF FIRM RETENTION

Independent Variable	Sign Predicted by The Model	1 Regression Without Control Variables	2 Regression With Control Variables
CONSTANT	?	-0.77*** (-15.71)	-1.67*** (-4.05)
TOTMSAL	+	0.103*** (4.89)	0.164*** (2.7916)
CDIVID	-	-0.003*** (-3.93)	-0.004*** (-3.23)
LNINCOME	-	-0.117*** (-6.04)	-0.242*** (-5.18)
DEBTEQUT			1.140 (1.0816)
Q			0.129*** (2.77)
CAPEXP			0.000 (0.105)
BOARDNO			0.045 (1.26)
AK			-0.089** (-2.28)
AGE			0.001 (0.91)
BANKINF2			-0.372*** (-2.219)
PSEUDO R ²		3.4%	20.3%
WALD χ^2		71.989***	163.336***
N		1142	513

Note: Figures within brackets are t-statistics. ** indicates result significant at 95% level and *** indicates result significant at 99% level of confidence. Dependent variable is retention, which is calculated as the Log of (1-PAYOUT). TOTMSAL is the total compensation spent on managerial salaries. CDIVID is the value of dividends. NETINC is the net income and LNINCOME is the log of NETINC. LTDEBT is the long term debt. CEQUITY is the value of common stock. DEBTEQUT is the ratio of LTDEBT to CEQUITY. Q is the market to book value of the firm or Tobin's Q. CAPEXP is the capital expenditures. MSALPER is the average managerial pay per managing board member. BOARDNO is equal to TOTMSAL divided by MSALPER. AGE is the age of the firm in 1986. AK is a ranked measure of the firm's concentration of ownership. BANKINF2 is a dummy variable which is set to 1 if there is determined to be bank influence on the firm and 0 otherwise. Pseudo R² is the squared correlation between observed and expected values. The Wald χ^2 tests the null hypothesis that all of the Tobit model parameters are zero. We have also used industry and year dummy variables but we have not reported those results. The squared correlation (Pseudo R²) between observed and expected values is about 20% for the regression with control variables. The Wald χ^2 tests the null hypothesis that all of the Tobit model coefficients, other than the intercept term, are zero. The null hypothesis that the model fails to fit the data is strongly rejected at the 99% level.

Discussion of Empirical Results

We can draw several interesting insights regarding German corporate governance from our results. Corporate governance, *inter alia*, aims to reduce the informational asymmetry between the shareholders and the managers. In a market based system like that in North America, this agency issue is resolved through the executive compensation contract and by using dividends as an observable contracting variable. In contrast, the German corporate governance model also relies on banks to reduce the informational asymmetry between owners and managers. Our results suggest that the influence of banks in Germany is in fact able to partially resolve this informational asymmetry, and, that dividends appear to play a similar role in resolving the issue of asymmetric information.

Our model has two control variables that have a direct bearing on the agency issue. These are the variables AK and BANKFIN2. AK is a ranked measure of the firms' concentration of ownership with a rank of 5 showing the most concentrated holding and BANKFIN2 is a dummy variable for bank influence both of which are negative and statistically significant. Since our dependant variable is the natural logarithm of the retention ratio, this shows that firms with more concentrated holding and firms influenced by banks are retaining less which means that these firms have higher payout ratios. This finding is also consistent with the Free Cash Flow Hypothesis of Jensen (1986) and Easterbrook (1984). We thus conclude that firms with more concentrated holdings and firms which are influenced by banks have better monitoring and are better able to extract cash from the managers in line with the free cash flow hypothesis. However, these alternative governance devices appear to resolve the informational asymmetry only partially. Dividends are also statistically significant, and have a role in resolving the agency issues through a link with the executive compensation. We conclude that the role of dividends in resolving the agency issue is robust across both market based governance systems (as in North America) and bank based governance systems (as in Germany).

CONCLUSIONS

Our results show that the negative relationship between executive compensation and dividend payout ratios that exists for North American companies also exists for German firms. This study suggests that the role of dividends in mitigating agency issues holds even in bank based corporate governance systems such as Germany. In addition, the predictions of the Bhattacharyya (2007) model appear to hold in the German institutional environment. Further these results are robust to specification and highly consistent with earlier studies on US and Canadian firms.

In addition, we found that firms influenced by banks or firms having higher ownership concentrations also have higher dividend payout ratios-a finding that is consistent with the free cash flow hypothesis as posited by Jensen (1986) and Easterbrook (1984). Results from this study suggest that bank influenced governance structures may mitigate the agency issues but only partially, and that dividends still play an important role in resolving agency issues -similar to that in market based governance structures.

An important policy implication of this study is that dividends appear to have an important role to play in resolving agency issues even under alternative corporate governance and institutional settings. Future research effort would include research to understand whether the model holds in other European countries such as Italy and the UK. Another interesting area of research would be to investigate how the coefficient values differ in countries with other institutional settings.

ENDNOTES

¹ Empirical evidence on the link between dividend policy and firm ownership has been well explored for US and UK firms [Rozeff (1982), Jensen, Solberg, and Zorn (1992), Eckbo and Verma (1994)], however, little attention has been paid to the potential link between institutional ownership and dividend policy in other countries. In fact, Short, Zhang, and Keasey (2002) in their study of UK firms point out that this constitutes a truly neglected area of research given the fact that the institutional frameworks and ownership structures tend to vary around the world.

² Through the proxy voting system (Depotstimmrecht), banks can obtain voting rights from shares in trustee accounts of bank customers. In fact almost half of the total shares issued are deposited in such bank trustee accounts.

³ See Chirinko and Elston (2006) for a comprehensive description of the data and derivation of the bank influence variable. Voting data are available for 1986 only. Ownership identity and concentration are available for each firm for every year of the study.

⁴ See Edwards and Fischer, (1994, pp. 77) for a detailed discussion on German legal incorporations.

⁵ Theory predicts these effects should be statistically significant in explaining dividend payout, results reveal significance of these effects at the 99% level of confidence.

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APPENDIX A

TABLE A1
DESCRIPTIVE STATISTICS OF KEY VARIABLES

Name	N	Mean	Median	St. Dev	Minimum	Maximum
PAYOUT	1159	0.57	0.62	0.29	0.	0.99993
LNRETEN	1159	-1.21	-0.97	1.12	-9.6	0
CDIVID	1159	29.12	3.88	78.34	0	589.11
NETINC	1159	45.56	6.9	120.00	0.01	1144.6
LNINCOME	1159	1.82	1.93	2.14	-4.61	7.04
Q	1055	1.48	1.46	1.08	0.13	9.47
LTDEBT	1137	1.05	0.29	5.50	0.01	75.5
CEQUITY	1128	201.63	35.35	481.83	1.5	2945.6
DEBTEQUT	1113	0.04	0.01	0.11	0	1.04
TOTMSAL	1142	1.70	0.75	2.47	0.03	19.11
MSALPER	649	0.33	3.80	0.25	0.02	3.8
BOARDNO	649	4.86	18.33	3.41	1	18.33
CAPEXP	1093	27.63	2.86	98.81	-494.14	1135.5
AGE	1142	119.25	120	50.91	29	537.00

Note: PAYOUT is the dividend payout ratio. LNRETEN is the Log of (1-PAYOUT). CDIVID is the value of dividends paid to common stock holders. NETINC is the net income for the firm. LNINCOME is the log of NETINC. Q is the market to book value of the firm or Tobin's Q. LTDEBT is the long term debt of the firm. CEQUITY is the value of common stock. DEBTEQUT is the ratio of LTDEBT to CEQUITY. TOTMSAL is the Total amount of compensation spent by the firm on managerial salaries. MSALPER is the average managerial pay per managing board member of the firm. BOARDNO is equal to TOTMSAL divided by MSALPER. CAPEXP is the capital expenditures of the firm. All financial variables are measured in millions of DM. AGE is the age of the firm in years in 1986. Monetary variables are in millions of DM.

TABLE A2
CORRELATION COEFFICIENTS OF KEY VARIABLES

	PAYOUT	LNRETEN	CDIVID	NETINC	LNINCOME	Q	LTDEBT	CEQUITY	DEBTEQUT	TOTMSAL	MSALPER	BOARDNO	CAPEXP	AGE
PAYOUT	1													
LNRETEN	-0.79	1												
CDIVID	0.27	-0.16	1											
NETINC	0.17	-0.08	0.95	1										
LNINCOME	0.36	-0.17	0.68	0.71	1									
Q	0.09	0.07	0.03	0.07	0.17	1								
LTDEBT	-0.22	0.10	-0.09	-0.11	-0.21	-0.53	1							
CEQUITY	0.23	-0.16	0.97	0.93	0.69	0.00	-0.07	1						
DEBTEQUT	-0.18	0.11	-0.22	-0.23	-0.51	-0.27	0.54	-0.23	1					
TOTMSAL	0.16	-0.06	0.89	0.91	0.75	0.06	-0.10	0.89	-0.32	1				
MSALPER	0.05	0.01	0.66	0.69	0.65	0.02	-0.02	0.65	-0.29	0.83	1			
BOARDNO	0.21	-0.12	0.79	0.81	0.78	0.06	-0.16	0.80	-0.42	0.87	0.55	1		
CAPEXP	-0.01	0.01	0.09	0.11	0.18	0.01	-0.05	0.08	-0.08	0.15	0.14	0.19	1	
AGE	0.03	-0.03	0.08	0.04	-0.12	-0.21	0.17	0.07	0.18	0.04	-0.04	0.06	-0.08	1

Note: PAYOUT is the dividend payout ratio. LNRETEN is the Log of (1-PAYOUT). CDIVID is the value of dividends paid to common stock holders. NETINC is the net income for the firm. LNINCOME is the log of NETINC. Q is the market to book value of the firm or Tobin's Q. LTDEBT is the long term debt of the firm. CEQUITY is the value of common stock. DEBTEQUT is the ratio of LTDEBT to CEQUITY. TOTMSAL is the total amount of compensation spent by the firm on managerial salaries. MSALPER is the average managerial pay per managing board member of the firm. BOARDNO is equal to TOTMSAL divided by MSALPER. CAPEXP is the capital expenditures of the firm. AGE is the age of the firm in years as of 1986. Units of measurement for monetary variables are millions of DM.