Descriptive statistics for the sample firms are displayed in Table 5. All variables, which are not truncated by definition are winsorized by their 1% and 99% interval to account for outliers. Restrictions imposed to the sample selection process (e.g. coverage on Worldscope and financial statements are available for three consecutive years) biases the sample towards larger firms, as evidenced by variables capturing a firm's size or age. The shown Tobin's q is comparable to that of Dittmann, Maug and Schneider (2010). Their reported mean is 1.54 (sample: 1.55) and median is 1.24 (sample: 1.30).

Table 5: Descriptive statistics of the sample firms (n=453)

Variable	Mean	Std.dev	Min	25th	Median	75th	Max
TOTASS	4,150.060	18,599.930	6.344	57.038	150.660	510.992	133,565.000
MKTCAP	1,478.700	4,428.930	4.272	35.309	105.427	494.900	33,715.090
SALES	2,912.510	10,110.520	3.663	53.296	183.733	671.735	61,347.010
%FORSALES	0.400	0.283	0.000	0.142	0.393	0.618	1.000
TQ	1.551	0.846	0.429	1.063	1.296	1.728	6.507
SALESGROWTH	0.073	0.258	-0.788	-0.024	0.063	0.150	1.427
CAPEX	0.044	0.046	0.000	0.015	0.033	0.057	0.347
R&D	0.034	0.059	0.000	0.000	0.007	0.046	0.302
ROA	0.057	0.142	-0.573	0.025	0.074	0.111	0.402
LEV	0.197	0.182	0.000	0.029	0.155	0.311	0.767
CLSHELD	0.452	0.258	0.000	0.258	0.466	0.646	0.984
AGE	51.940	50.198	3.000	13.000	28.000	83.000	201.000
SEGMENT	3.351	1.510	1.000	2.000	3.000	4.000	8.000

Variable definitions (data source):
TOTASS is a firm's total assets in M€ (Worldscope), MKTCAP is a firm's market capitalization in M€ (Worldscope), SALES is a firm's sales in M€ (Worldscope), %FORSALES is foreign sales to sales (Worldscope), TQ is the market value of the firm's equity at the end of the year plus the difference between the book value of the firm's assets and the book value of the firm's equity at the end of the year, divided by the book value of the firm's assets at the end of the year (Worldscope), SALESGROWTH is a firm's sales in t minus sales in t-1 to sales in t-1 (Worldscope), CAPEX is capital expenditures (additions to fixed assets) to total assets (Worldscope), R&D is a firm's research and development expense to total assets (Worldscope), ROA is a firm's EBIT to total assets (Worldscope), LEV is a firm's total debt to total assets (Worldscope), CLSHELD is a firm's closely held shares to common shares outstanding (Worldscope), AGE is a firm's age (Worldscope), SEGMENT is a firm's number of product segments (Worldscope).

Panel A of Table 6 displays board related characteristics. A firm's average two-tier board consists of 10.2 members. Hereof, 7.2 individuals belong to the supervisory board and 3 individuals belong to the management board. Supervisory boards meet approximately 5 times per year on a regular basis and 0.3 times on an irregular basis. Supervi-

sory boards are allowed to establish several committees in order to make their work more efficient. Typical examples are the audit committee (deals mostly with accounting-related topics) or the compensation committee (deals with management compensation). On average, the sample firms establish 1.5 committees.

Table 6: Board related characteristics (n=453)

Variable	Mean	Std.dev	Min	25th	Median	75th	Max
Panel A							
BOARDSIZE	10.221	5.794	2.000	6.000	8.000	13.000	29.000
SPVSIZE	7.269	4.931	1.000	3.000	6.000	11.000	21.000
MGNSIZE	2.951	1.391	0.000	2.000	3.000	4.000	10.000
REGMEET	4.903	1.276	2.000	4.000	5.000	5.000	12.000
IRGMEET	0.307	0.842	0.000	0.000	0.000	0.000	6.000
COMMITTEE	1.468	1.440	0.000	0.000	1.000	3.000	6.000
Panel B							
BOARDTIES	12.751	14.104	0.000	4.000	8.000	17.000	75.000
NATBOARDTIES	10.333	11.869	0.000	3.000	6.000	13.000	60.000
INTBOARDTIES	2.417	4.132	0.000	0.000	1.000	3.000	21.000
COSSEATS	2.236	2.244	0.000	0.000	2.000	4.000	10.000
%BUSYD	0.263	0.180	0.000	0.125	0.250	0.400	0.750
BUSYBOARD	0.130	0.337					
%COSD	0.076	0.095	0.000	0.000	0.000	0.143	0.500
COSBOARD	0.459	0.499					
%INTD	0.115	0.142	0.000	0.000	0.080	0.190	0.750
INTBOARD	0.035	0.185					
%BANKD	0.045	0.079	0.000	0.000	0.000	0.077	0.400
BANKBOARD	0.316	0.465					

Variable definitions (data has been hand-collected from annual consolidated financial statements):

Panel A:

BOARDSIZE is the size of a firm's supervisory board and management board as of December 31 of the respective year, SPVSIZE is the size of a firm's supervisory board as of December 31 of the respective year, MGTSIZE is the size of a firm's management board as of December 31 of the respective year, REGMEET is the number of a firm's regular board meetings, IRGMEET is the number of firm's irregular board meetings, COMMITTEE is the number of a firm's established committees by the supervisory board.

Panel B:

BOARDTIES is the number of ties established by board members to other boards, NATBOARTIES is the number of ties established by board members to German supervisory or management boards, INTBOARDTIES is the number of ties established by board members to non-domestic supervisory or management boards, COSSEATS is the number of additional seats hold by the chair of the supervisory board, %BUSYD is busy board members to board members, BUSYBOARD is an indicator variable taking the value 1 if more than 50% or more of the board members are busy, %COSD is board members holding the position of a chair of supervisory board in other firms to board members, COSBOARD is an indicator variable taking the value 1 if at least one director holds a chair of a supervisory board in another firm, %INTD is directors with international board appointments to board members, INTBOARD is an indicator variable taking the value 1 if more than 50% or more of the board members have international appointments, %BANKD is directors serving on a bank's supervisory or management board to board members, BANKBOARD is an indicator variable taking the value 1 if at least one director also serves on a bank's supervisory or management board.

Panel B of Table 6 provides information with regard to ties established by members of the board holding multiple directorships. On average, a board establishes about 12.7 ties to other boards. Only 7.6% of the boards feature directors without any ties, 54.9% of the boards establish between one and ten ties to other boards, the remaining 37.5% of the boards have more than ten ties to other boards. From the ties, 10.3 are connections to domestic boards and 2.4 are connections to non-domestic boards. Notably, 43.7% of the boards do not feature a tie to a non-domestic board, 41.7% establish between one and five ties to non-domestic boards and the remaining 14.6% have more than five ties to non-domestic boards; this indicates that international ties are clustered around a small group of the sample firms. On average, the chairman of the supervisory board establishes 2.2 ties to other boards. More specifically, 29.6% of the sample chairmen have no additional board appointment, 60.5% establish between one and five ties to other boards and the remaining 9.9% establish more than five ties to other boards.

Prior literature dealing with multiple board appointments typically classifies directors into “busy” and “non-busy”. A busy director is defined as holding three or more board appointments (Core, Holthausen and Larcker, 1999; Ferris, Jagannathan and Pritchard, 2003; Fich and Shivdasani, 2006). On average, the percentage of busy directors on a firm’s board is 26.3%. Fich and Shivdasani (2006) suggest to alternatively assess the prevalence of busyness within a board by using an indicator variable that is one if 50% or more of all board directors have been identified as being busy. Using this approach shows that 13% of the boards are busy.

Next, I assess the presence of chairmen of supervisory boards (COS) on the sample firms’ boards. On average, 7.6% of the directors (that are not the chairman of a supervisory board of a sample firm) hold at least one chairman position in another firm. As an

alternative measure, the indicator variable COSBOARD is one if an individual who is chairman of a supervisory board on another firm sits on the sample firm's board. Accordingly, 45.9% of the sample firms have at least one individual on their board who is the chairman of another supervisory board.

In order to assess a board's international orientation, I use a similar approach as used for identifying a board's busyness. I classify a director as being "international", if the director holds at least one appointment on a non-domestic board. Throughout the study, internationalization of a director or a board refers to ties abroad. I do not use the same threshold used for identifying busy directors because having international appointments is not as prevalent as having multiple board seats. On average, the percentage of international directors on a firm's board is 11.5%. Measuring internationalization of a board by an indicator variable that is one if 50% or more of all board directors are international shows that 3.5% of the boards are international.

I classify a board to feature bank representation if an individual on the board also serves on the supervisory or management board of a bank. Accordingly, the percentage of bank representatives on the sample firm's board is 4.5%. In comparison, Dittmann, Maug and Schneider (2010) find that 8.8% of the directors are bankers. However, they classify a director to be a banker if the individual is or was a member of the management board of a bank and calculate their ratio based to the total number of shareholder representatives, only. Similar to the approach of capturing busyness and internationalization of a board, I also use an indicator variable to measure bank prevalence. The respective indicator variable is 1, if at least one director is a bank representative. 31.6% of the sample firms have at least one bank representative on their board. A comparable approach by the aforementioned authors yields 46% boards with bank representation.

4.2.3 Correlations

Table 7 displays correlations between board related variables and firm characteristics. The figures show a positive and significant correlation between firm and board size and the occurrence of multiple board appointments. Notably, the correlations show a negative relationship between the different measures of multiple board appointments and Tobin's q except for the percentage of international directors. Likewise, return on assets is negatively correlated with the measures except for the presence of bank directors. Overall, the correlations give a first indication of a possible negative relationship between the occurrence of multiple board appointments and firm performance.

Table 7: Pearson/Spearman correlations between dependent/independent variables (n=453)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) TQ		**0.296**	**-0.120**	-0.052	**-0.098**	**-0.111**	**0.108**	-0.054	-0.014	-0.076	**0.254**	-0.050	**0.290**	-0.020	**0.205**	**-0.294**	-0.055	0.015
(2) ROA	**0.476**		0.070	**-0.118**	**-0.115**	0.057	**-0.143**	**-0.134**	**-0.219**	**0.147**	**0.356**	**0.363**	**0.269**	**0.147**	**-0.352**	-0.026	0.059	**0.126**
(3) %FORSALES	**-0.107**	0.055		**0.178**	**0.110**	**0.117**	**0.244**	**0.193**	**0.221**	**0.158**	**0.217**	**0.289**	**-0.079**	0.014	0.051	**0.092**	-0.074	**0.151**
(4) %BUSYD	-0.018	-0.043	**0.188**		**0.513**	**0.358**	**0.493**	**0.783**	**0.747**	**0.292**	**0.297**	**0.281**	-0.030	0.044	**0.130**	0.024	**-0.110**	**0.173**
(5) %COSD	**-0.078**	**-0.093**	**0.112**	**0.514**		**0.267**	**0.243**	**0.562**	**0.421**	**0.288**	**0.241**	**0.250**	-0.067	**0.085**	0.014	-0.005	**-0.113**	**0.117**
(6) %BANKD	-0.034	0.070	**0.114**	**0.342**	**0.298**		**0.120**	**0.402**	**0.285**	**0.470**	**0.425**	**0.481**	-0.047	**0.081**	**-0.142**	**0.117**	**-0.108**	**0.274**
(7) %INTD	0.019	-0.051	**0.273**	**0.475**	**0.257**	**0.173**		**0.483**	**0.721**	**0.168**	**0.208**	**0.115**	0.023	-0.019	**0.312**	**-0.080**	**-0.150**	0.077
(8) BUSYSCORE	-0.011	**-0.100**	**0.216**	**0.788**	**0.536**	**0.378**	**0.429**		**0.788**	**0.311**	**0.309**	**0.288**	-0.053	0.012	**0.104**	0.009	**-0.138**	**0.218**
(9) REPUTATIONSCORE	-0.026	**-0.117**	**0.232**	**0.747**	**0.407**	**0.294**	**0.616**	**0.783**		**0.231**	**0.260**	**0.192**	-0.040	-0.056	**0.294**	-0.055	**-0.156**	**0.128**
(10) BOARDSIZE	0.032	**0.130**	**0.145**	**0.283**	**0.360**	**0.470**	**0.287**	**0.312**	**0.237**		**0.766**	**0.827**	0.043	**0.186**	**-0.155**	**0.099**	-0.076	**0.254**
(11) MKTCAP	**0.366**	**0.412**	**0.189**	**0.264**	**0.257**	**0.432**	**0.242**	**0.271**	**0.229**	**0.701**		**0.863**	**0.189**	**0.187**	**-0.121**	-0.039	**-0.172**	**0.293**
(12) SALES	0.017	**0.380**	**0.253**	**0.239**	**0.265**	**0.463**	**0.193**	**0.255**	**0.181**	**0.754**	**0.821**		**0.124**	**0.222**	**-0.311**	**0.195**	**-0.119**	**0.316**
(13) SALESGROWTH	**0.307**	**0.382**	-0.025	-0.056	**-0.097**	-0.045	-0.015	**-0.086**	**-0.087**	0.050	**0.283**	**0.158**		0.018	0.009	**-0.136**	**-0.089**	-0.027
(14) CAPEX	0.043	**0.261**	**0.097**	**0.116**	**0.181**	**0.162**	0.067	**0.110**	0.033	**0.379**	**0.314**	**0.395**	0.075		**-0.128**	**0.236**	0.077	**0.111**
(15) R&D	**0.193**	**-0.083**	**0.261**	**0.159**	0.040	**-0.097**	**0.175**	**0.139**	**0.255**	0.022	**0.091**	**-0.099**	0.056	-0.065		**-0.279**	**-0.120**	**-0.097**
(16) LEV	**-0.294**	-0.048	**0.148**	0.076	0.039	**0.159**	0.017	0.073	0.017	**0.172**	0.003	**0.273**	**-0.202**	**0.280**	**-0.243**		-0.013	**0.153**
(17) CLSHELD	**-0.105**	0.024	-0.069	**-0.122**	**-0.116**	**-0.086**	**-0.140**	**-0.142**	**-0.142**	-0.053	**-0.182**	**-0.085**	**-0.112**	0.066	**-0.245**	-0.025		**-0.123**
(18) SEGMENT	0.046	**0.166**	**0.148**	**0.171**	**0.120**	**0.249**	**0.125**	**0.217**	**0.159**	**0.158**	**0.268**	**0.277**	0.005	**0.141**	-0.055	**0.181**	**-0.133**	

Variable definitions (data source):
TQ is the market value of the firm's equity at the end of the year plus the difference between the book value of the firm's assets and the book value of the firm's equity at the end of the year, divided by the book value of the firm's assets at the end of the year (Worldscope), ROA is a firm's EBIT to total assets (Worldscope), %FORSALES is foreign sales to sales (Worldscope), %BUSYD is busy board members to board members, %COSD is board members holding the position of a chair of supervisory board to board members, %BANKD is directors serving on a bank's supervisory or management board to board members, %INTD is directors with international board appointments to board members, BUSYSCORE is a score that captures the busyness of a board (calculation as described), REPUTATIONSCORE is a score that captures the reputation/skill of a board (calculation as described), BOARDSIZE is the size of a firm's supervisory board and management board as of December 31 of the respective year, MKTCAP is the natural logarithm of a firm's market capitalization (Worldscope), SALES is the natural logarithm of a firm's sales (Worldscope), SALESGROWTH is a firm's sales in t minus sales in t-1 to sales in t-1 (Worldscope), CAPEX is a firm's capital expenditures (additions to fixed assets) to total assets (Worldscope), R&D is a firm's research and development expense to total assets (Worldscope), LEV is a firm's total debt to total assets (Worldscope), CLSHELD is a firm's closely held shares to common shares outstanding (Worldscope), SEGMENT is a firm's number of product segments (Worldscope).
Notes:
Pearson (Spearman) correlations are displayed above (below) the diagonal. Bold typeset denotes significant correlations below the 10 % level.

4.3 Multiple board appointments and firm performance

4.3.1 Methodology

Throughout the study, I deploy firm and year fixed effects. The inclusion of fixed effects mitigates effects of unobserved heterogeneity. Fich and Shivdasani (2006) point towards the importance to estimate firm-fixed effect regressions in a related setting. Using firm-fixed effects in this setting is a comparable conservative method. Since board composition is substantially different across firms and strong changes do not occur from year to year, much of the cross-sectional variation is removed. Hermalin and Weisbach (1991) point towards the importance to reason whether inferences should be made within or between firms on the investigation of firm performance and board composition. Zhou (2001) suggests that fixed effects estimators might be unsuitable to detect a relationship of managerial ownership on firm performance because changes in managerial ownership are too small. I consider the firm and year fixed effects specifications to be more conservative that work against finding a relationship between the board composition variables and performance.

Endogeneity constitutes a problem throughout the investigation. Directors holding multiple board appointments might positively or negatively affect firm performance. Likewise, poorly performing firms might try to attract directors holding multiple appointments to draw on their experience and networks. On the other hand, banks might feel a stronger urge to monitor their loans when firms exhibit poor performance. When investigating the relationship on foreign sales, an increase might be the result of directors using their international networks to enhance international activities. On the other hand, firms that are already in the process of increasing foreign sales might seek directors with international board appointments. Likewise, directors serving on internationally ori-

ented firms might be more internationally exposed, resulting in offers to serve on international boards. I address the endogeneity problem in a separate section.

In order to test my hypotheses, I draw on firm performance measures used in prior literature. I use Tobin's q (TQ), which is a commonly used measure in this line of literature (e.g. Yermack, 1996; Fauver and Fuerst, 2006; Dittman, Maug and Schneider, 2010). Following Fich and Shivdasani (2006), the definition used is "the market value of the firm's equity at the end of the year plus the difference between the book value of the firm's assets and the book value of the firm's equity at the end of the year, divided by the book value of the firm's assets at the end of the year".[1]

The idea behind Tobin's q is that it puts the expected firm's market value in relation to the replacement cost of tangible assets (Lang and Stulz, 1994). When financial markets are assumed to be efficient, Tobin's q captures the contribution of intangible assets to the firm's market value via market expectations. The intangible assets are composed of several components like investment opportunities or reputational capital. The board can directly affect the nominator and the denominator of Tobin's q as it is responsible for the firm's investments. Also, the board can be viewed as an intangible asset itself with a positive or negative value. Models drawing on this relationship assume that good management and good corporate governance have a positive impact on Tobin's q. A drawback of Tobin's q lies in the circumstance that it can also proxy for other firm characteristics. For example, it can capture a firm's investment opportunities, especially when underinvestment prevails due to liquidity shortage. Although a control for investment opportunities is included in the models, I also use alternative measures of firm performance which are discussed later.

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[1] Fich and Shivdasani (2006) closely follow Smith and Watts (1992).

Studies that investigate boards in the Anglo-American setting often include additional controls, particularly board size, board committees and board meetings. I do not consider these controls to be suitable in the setting at hand. Board size is strongly driven by a firm's size and number of employees. As a matter of fact, board size exhibits a high correlation with the size measures (Table 7). Including both variables into my model specifications results in VIFs far over 10, introducing the risk that results are pested by multicollinearity issues. Also, the number of board meetings and number of board committees are partly regulatory driven. German supervisory boards meet at least four times per year by law. The German Corporate Governance Codex stipulates to establish committees. Overall, including these variables exhibit the danger to include mechanistically driven controls or to be endogenous. In this respect, my proposed base model is a comparable parsimonious specification that strongly follows Dittmann, Maug and Schneider (2010), whose study is also set in a German institutional setting.

The base model specification is as follows:

Model (1)

$$TQ = \beta_1 VariableOfInterest + \beta_2 SALES + \beta_3 SALESGROWTH + \beta_4 CAPEX + \beta_5 R\&D + \beta_6 LEV + \beta_7 CLSHELD + \beta_8 SEGMENT + \varepsilon$$

It is conventional to control for several value drivers that can influence Tobin's q. Specifically, I control for firm size (SALES), measured as the natural logarithm of sales; sales growth (SALESGROWTH), measured as sales minus last year's sales to last year's sales; capital expenditures (CAPEX), measured as capital expenditures to property, plant and equipment to total assets; research and development intensity (R&D), measured as research and development expense to total assets; leverage (LEV), meas-

ured as total debt to total assets; ownership structure, measured as closely held shares to common shares outstanding (CLSHELD) and the number of product segments (SEGMENT). These variables are all provided by Worldscope. Table 8 displays the results of estimating Model 1 without board variables. The model exhibits a reasonable fit with sales growth, research and development intensity, leverage and ownership structure significantly contributing to the model fit.

Table 8: Tobin's q base model (n=453)

Independent variable	Coefficient
SALES	0.031
	(0.779)
SALESGROWTH	**0.392**
	(0.001)
CAPEX	1.287
	(0.143)
R&D	**2.346**
	(0.012)
LEV	**-0.793**
	(0.020)
CLSHELD	**0.408**
	(0.070)
SEGMENT	-0.017
	(0.611)
Fixed effects	Firm, Year
F-statistic	**11.070**
	(0.000)
R^2	0.857

Dependent Variable: Tobin's q (Worldscope)
Variable definitions (data source):
SALES is the natural logarithm of a firm's sales (Worldscope), SALESGROWTH is a firm's sales in t minus sales in t-1 to sales in t-1 (Worldscope), CAPEX is a firm's capital expenditures (additions to fixed assets) to total assets (Worldscope), R&D is a firm's research and development expense to total assets (Worldscope), LEV is a firm's total debt to total assets (Worldscope), CLSHELD is a firm's closely held shares to common shares outstanding (Worldscope), SEGMENT is a firm's number of product segments (Worldscope).
Notes:
Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

4.3.2 Busyness vs. Reputation Hypothesis

In this part, I investigate multiple board appointments under aspects of the Busyness Hypothesis and the Reputation Hypothesis. Under the Busyness Hypothesis, directors with multiple board appointments are expected to have a negative impact on firm per-

formance (Ferris, Jagannathan and Pritchard, 2003). Individuals might be overcommitted and thus not able to fulfill their responsibilities due to time constraints. Jiraporn et al. (2009) find that multiple directorships negatively affect the probability of attending board meetings. The consequent reduction in the monitoring function could for example lead to agency costs in form of increased litigation exposure. Jiraporn, Singh and Lee (2009) find that directors holding more board appointments serve on fewer board committees. Board committees are associated with increasing board effectiveness (Klein, 1998). Under the Reputation Hypothesis, directors with multiple board appointments are expected to enhance firm performance. The director increases his skills and his experience by sitting on different boards and learns about different management styles and strategies (Carpenter and Westphal, 2001). Holding multiple board appointments is perceived as a credible signal of the director's skills (Fama and Jensen, 1983). Consequently, skilled directors hold more board appointments because they are actively sought by firms for their firm performance improving abilities (Jiraporn, Singh and Lee, 2009).

Drawing on prior literature, I assess director busyness by counting a director's board appointments. In order to assess the Reputation Hypothesis, I draw on the presence of chairmen of supervisory boards of other firms and on the number of appointments held by the chair of the supervisory board. The chair of the supervisory board has a more distinguished function on the board. Consequently, this position should be given to skilled and experienced individuals. Evidence that chairmen of supervisory boards are different from their fellow colleagues can be found in Table 9. Accordingly, COS (1) are significantly more often male, (2) hold significantly more often a doctoral and/or professorial degree and (3) have significantly more directorships. I investigate whether the presence of several of these individuals enhances firm performance.

Table 9: Subdivision of the director sample (4,408 director years)

Variable	Mean	Median	Mean	Median	p-value (Chi-square/ t-Test)	p-Value (Wilcoxon Test)
	Non-COS (n=3,651)		**COS (n=757)**			
FEMALE	0.078		0.015		(0.000)	
ACADEMIC	0.262		0.482		(0.000)	
SEAT	1.719	1.000	4.020	4.000	(0.000)	(0.000)
SPVSEAT	1.276	1.000	3.798	3.000	(0.000)	(0.000)
MGTSEAT	0.443	0.000	0.222	0.000	(0.000)	(0.000)
NATSEAT	1.553	1.000	3.501	3.000	(0.000)	(0.000)
INTSEAT	0.165	0.000	0.519	0.000	(0.000)	(0.000)

Variable definitions (data has been hand-collected from annual consolidated financial statements):
FEMALE is an indicator variable taking the value 1 if an individual is female, ACADEMIC is an indicator variable taking the value 1 if an individual has a doctoral and/or professorial degree, SEAT is the total number of an individual's seats in supervisory and management boards, SPVSEAT is the number of an individual's seats in supervisory boards, MGTSEAT is the number of an individual's seats in management boards, NATSEAT is the number of an individual's seats in German supervisory and management boards, INTSEAT is the number of an individual's seats in non-domestic supervisory and management boards.

In order to contrast the Busyness Hypothesis and the Reputation Hypothesis, I estimate model (1) with the variables percentage of busy directors (%BUSYD), the indicator variable BUSYBOARD, percentage of directors being chairman of supervisory boards (%COSD) and the indicator variable COSBOARD. Results are displayed in Table 10.

Table 10: Busyness vs. Reputation Hypothesis (n=453)

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variable	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
%BUSYD	-0.347				-0.362	
	(0.208)				(0.191)	
BUSYBOARD		-0.111				-0.111
		(0.249)				(0.248)
%COS			0.258		0.299	
			(0.541)		(0.480)	
COSBOARD				0.039		0.039
				(0.634)		(0.627)
SALES	0.034	0.028	0.032	0.034	0.035	0.031
	(0.758)	(0.801)	(0.775)	(0.761)	(0.752)	(0.782)
SALESGROWTH	**0.390**	**0.396**	**0.391**	**0.388**	**0.388**	**0.391**
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
CAPEX	1.322	1.266	1.302	1.285	1.340	1.263
	(0.133)	(0.150)	(0.140)	(0.145)	(0.128)	(0.152)
R&D	**2.280**	**2.217**	**2.337**	**2.338**	**2.267**	**2.209**
	(0.015)	(0.019)	(0.013)	(0.013)	(0.016)	(0.019)
LEV	**-0.819**	**-0.792**	**-0.800**	**-0.802**	**-0.829**	**-0.801**
	(0.016)	(0.020)	(0.019)	(0.019)	(0.015)	(0.019)
CLSHELD	**0.395**	**0.426**	**0.398**	**0.405**	**0.382**	**0.423**
	(0.079)	(0.059)	(0.078)	(0.073)	(0.091)	(0.061)
SEGMENT	-0.018	-0.020	-0.015	-0.016	-0.015	-0.019
	(0.597)	(0.545)	(0.658)	(0.629)	(0.651)	(0.562)
Fixed effects	Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year
F-statistic	**11.030**	**11.020**	**10.980**	**10.970**	**10.950**	**10.930**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.858	0.858	0.857	0.857	0.858	0.858

Dependent Variable: Tobin's q (Worldscope)

Variable definitions (data source):

%BUSYD is busy board members to board members, BUSYBOARD is an indicator variable taking the value 1 if more than 50% or more of the board members are busy, %COSD is board members holding the position of a chair of supervisory board to board members, COSBOARD is an indicator variable taking the value 1 if at least one director holds a chair of a supervisory board in another firm, SALES is the natural logarithm of a firm's sales (Worldscope), SALESGROWTH is a firm's sales in t minus sales in t-1 to sales in t-1 (Worldscope), CAPEX is a firm's capital expenditures (additions to fixed assets) to total assets (Worldscope), R&D is a firm's research and development expense to total assets (Worldscope), LEV is a firm's total debt to total assets (Worldscope), CLSHELD is a firm's closely held shares to common shares outstanding (Worldscope), SEGMENT is a firm's number of product segments (Worldscope).

Notes:

Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

In line with the Busyness Hypothesis, I find a negative relationship between Tobin's q and busy directors. The relationship is non-significant at common significance levels. The sign of %COS and COSBOARD, which are both supposed to capture director skills, are both positive and insignificant. Estimating a full model, the signs are again as expected and non-significant on common levels. These results give weak evidence for both the Busyness and the Reputation Hypothesis. Multiple board appointments have a negative impact on firm performance. This effect does not hold for directors that are chairman on other supervisory board. This might stem from the circumstance that these individuals are particularly skilled in fulfilling their tasks on a supervisory board. However, these results are statistically insignificant.

I further substantiate the previous findings by conducting additional tests. In the previous test, no distinction is made with respect to which individual is busy. This is a simplification of reality in so far that both the CEO and the COS have a particular important role in and for a firm. Consequently, in line with the Busyness Hypothesis, it should be more harmful for a firm if these two individuals are busy. I address this consideration by estimating model (1) including the additional number of directorships held by the COS and the CEO. Results are displayed in Table 11.

Table 11: Appointments held by COS and CEO and Tobin's q (n=453)

	(1)	(2)	(3)	(4)	(5)
Independent variable	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
COSSEATS	**-0.036**		**-0.036**	-0.024	
	(0.096)		(0.096)	(0.629)	
COSSEATS²				-0.002	
				(0.796)	
NONCOSSEATS	0.006			0.005	
	(0.943)			(0.949)	
CEOSEATS		-0.007	-0.005		0.016
		(0.889)	(0.920)		(0.865)
CEOSEATS²					-0.006
					(0.761)
NONCEOSEATS		-0.039			-0.040
		(0.595)			(0.582)
NONCOSCEOSEATS			0.001		
			(0.992)		
SALES	0.059	0.034	0.060	0.059	0.029
	(0.597)	(0.763)	(0.592)	(0.600)	(0.799)
SALESGROWTH	**0.381**	**0.389**	**0.380**	**0.382**	**0.391**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
CAPEX	1.276	1.299	1.281	1.276	1.313
	(0.146)	(0.141)	(0.146)	(0.147)	(0.138)
R&D	**2.340**	**2.294**	**2.334**	**2.339**	**2.294**
	(0.013)	(0.015)	(0.014)	(0.013)	(0.015)
LEV	**-0.847**	**-0.799**	**-0.844**	**-0.842**	**-0.804**
	(0.013)	(0.019)	(0.014)	(0.014)	(0.019)
CLSHELD	**0.398**	**0.406**	**0.400**	**0.402**	**0.408**
	(0.077)	(0.073)	(0.077)	(0.075)	(0.072)
SEGMENT	-0.021	-0.018	-0.021	-0.021	-0.018
	(0.529)	(0.586)	(0.533)	(0.525)	(0.598)
Fixed effects	Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year
F-statistic	**10.980**	**10.870**	**10.880**	**10.880**	**10.770**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.859	0.857	0.859	0.859	0.857

Dependent Variable: Tobin's q (Worldscope)

Variable definitions (data source):

COSSEATS is the number of additional seats held by the chair of the supervisory board, $COSSEATS^2$ is the squared number of additional seats held by the chair of the supervisory board, NONCOSSEATS is the number of additional seats held by non-COS members of the board to board size minus one, CEOSEATS is the number of additional seats held by the CEO, $CEOSEATS^2$ is the squared number of additional seats held by the CEO, NONCEOSEATS is the number of additional seats held by non-CEO members of the board to board size minus one, NONCOSCEOSEATS is the number of additional seats held by board members who are not the COS or the CEO to board size minus two, SALES is the natural logarithm of a firm's sales (Worldscope), SALESGROWTH is a firm's sales in t minus sales in t-1 to sales in t-1 (Worldscope), CAPEX is a firm's capital expenditures (additions to fixed assets) to total assets (Worldscope), R&D is a firm's research and development expense to total assets (Worldscope), LEV is a firm's total debt to total assets (Worldscope), CLSHELD is a firm's closely held shares to common shares outstanding (Worldscope), SEGMENT is a firm's number of product segments (Worldscope).

Notes:

Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

In model specification (1), COSSEATS is the number of the COS's additional directorships and NONCOSSEATS is the number of additional seats held by the remaining board members deflated by board size minus one. In specification (2), CEOSEATS is the number of the CEO's additional directorships and NONCEOSEATS is the number of additional seats held by the remaining board members deflated by board size minus one. Finally, in specification (3), I include COSSEATS and CEOSEATS; NONCOSCEOSEATS is the number of additional seats held by the remaining board members deflated by board size minus two. Consistent with the Busyness Hypothesis, I find a negative sign on my variables of interest. The coefficient of COSSEATS is significant. While these results also suggest a negative relationship between multiple board appointments and firm performance, they need a more distinguished interpretation. Accordingly, the results suggest that it is more harmful for firm performance when the COS holds multiple board appointments while the negative relationship is not significant for additional board seats held by the CEO.

Balsmeier, Buchwald and Peters (2009) argue that the relationship between the number of board appointments of CEO or COS and firm performance might be non-linear. Particularly, they conjecture that although additional appointments are given to skilled directors, imposed time consumption will prevail after a certain number of multiple board appointments. In order to address this concern, they include the additional number of board appointments and its squared value. Their results suggest a positive concave relationship between additional seats held by the CEO and firm performance. In order to assess a possible non-linear relationship, I follow the aforementioned authors and also include the squared value of COSSEATS (specification (4)) and CEOSEATS (specification (5)). Notably, neither the variables of interest nor their squared values are significantly associated with firm performance. In this respect, my results do not indicate that

the non-linear model specification is more suitable in modeling the relationship between additional board appointments held by COS or CEO and firm performance. Investigating the signs of the coefficients, the results suggest a negative convex relationship for additional board appointments held by the COS since both coefficients of COSSEATS and COSSEATS^2 are negative. As for additional seats held by the CEO, the signs indicate a positive concave relationship, suggesting that there are benefits for firm performance if the CEO takes multiple board appointments but these are limited and the effect can turn negative if the number of additional board appointments is too high.

I further assess the previous findings in a final test. I address whether it matters which of the directors are busy by calculating a busyness score and a reputation score. The busyness score is calculated as follows:

$$BUSYSCORE_j = \frac{3*\sum_{CEO=1}^{1}\sum_{k=1}^{l} WL_{CEO,k} + 2*\sum_{MGT=1}^{n}\sum_{k=1}^{l} WL_{MGT,k} + 2*\sum_{COS=1}^{1}\sum_{k=1}^{l} WL_{COS,k} + 1*\sum_{SB=1}^{m}\sum_{k=1}^{l} WL_{SB,k}}{BOARDSIZE_j}$$

BUSYSCORE is calculated for every board of the firm j in the sample for each year. Each board is subdivided into four elements: CEO, management board (MGT) comprising n board members (excluding CEO), COS and supervisory board (SB) comprising m board members (excluding COS). The workload (WL) for each of these four elements is calculated. The workload captures for every individual whether that individual is a CEO, a member of a management board, a COS or a member of a supervisory board in another firm. Individuals can have k- up to l-additional appointments where l is only bounded for members of the supervisory board by ten. The underlying assumption of the score is that different tasks in a firm exhibit different time restrictions. It is assumed

that being a CEO is most time consuming. The workload associated with this task is 3. Next, it is assumed that time requirements of being in the management board and being a COS is somewhat comparable. In order to denote the difference to the CEO, the work-load associated with these tasks is 2. Finally, the workload associated with being a member of the supervisory board is 1. After these four sub scores are calculated, they are weighted. Since the management board is responsible for the operating activities of the firm, it is assumed that it is more harmful for a firm when the management board is busier than the supervisory board. Also, more weight is given to the circumstance that the CEO or the COS is busy. The weights are given according to the workloads. The score is deflated by board size.

The reputation score is calculated as follows:

$$REPUTATIONSCORE_j = \frac{\sum_{b=1}^{m} MGTSB_b + COS_b + INTERNATIONAL_b + EXPERIENCE_b + ACADEMIC_b}{BOARDSIZE_j}$$

The reputation score is calculated for every board of the firm j in the sample. This score aims at capturing the skills and experience that an individual brings to the board. Each board consists of m members. For each member, five indicator variables are calculated. MGTSB takes the value one, if an individual has a position in a management board and a supervisory board. The idea behind this variable is that an individual benefits from knowing how management and supervisory boards work. COS takes the value one if an individual is the chair of a supervisory board within a firm. As discussed above, being the chairman of a firm is a distinguished task and COS feature different characteristics than their fellow colleagues. In this respect, I interpret being entrusted with the position

to be the chairman of a supervisory board as a signal to be an individual with distinguished skills and experience. EXPERIENCE takes the value one if an individual has more than three directorships. This reflects the known argument of the Reputation Hypothesis that directors benefit from sitting on several boards and are able to improve their skills. INTERNATIONAL takes the value one if an individual is a member of a non-German board. Related to the experience argument, I assume that an individual benefits from being exposed to other cultural influences. Also, this might indicate that the individual has a broader network that he can rely on. ACADEMIC takes the value one if an individual has a doctoral and/or professorial degree. This variable is supposed to capture that an individual might be chosen to a board due to expertise on particular topics. Likewise, an academic degree might signal a good skill set. However, it needs to be kept in mind that this is a very crude proxy since neither the absence nor the existence of a doctoral or professorial degree necessarily shed light on the skill set of an individual. The reputation score is deflated by board size.

It is important to note that both scores feature highly debatable characteristics. In this respect, I propose the scores as additional measures to those that I already used in the two tests before. The difficulty in constructing the two scores clearly reflects the problems within this line of research. While it seems reasonable to assume that the CEO and COS are distinguished individuals that are important to the firm, the actual weights given to the workload are comparably erratic. In this respect, I do not propose that a CEO works three times more than a member of the supervisory board. Rather, the weights are meant to symbolize that different tasks exhibit different work loads and that different board positions can have a stronger impact on a firm's performance than others. Correlations show that both scores are negatively and non-significantly associated with Tobin's q. Correlations also show that both scores are highly correlated among

each other and that the scores are significantly positively correlated with all the other board variables, especially with %BUSYD. Estimating model (1) with the two board scores is displayed in Table 12. All specifications exhibit a negative and non-significant relationship with firm performance. However, the p-value of BUSYSCORE is 0.237 and the p-value of REPUTATIONSCORE is 0.107, indicating a rather strong negative relationship. The negative association pertains when including both proxy variables into the model specification. The weaker p-values should be seen in the light of high correlations between the two variables. Overall, these results further substantiate that multiple board appointments have a negative impact on firm performance and are not counteracted by skills or experience.

Table 12: Busyness score vs. Reputation score (n=453)

	(1)	(2)	(3)
Independent variable	**Coefficient**	**Coefficient**	**Coefficient**
BUSYSCORE	-0.059		-0.017
	(0.237)		(0.781)
REPUTATIONSCORE		-0.227	-0.198
		(0.107)	(0.260)
SALES	0.052	0.048	0.052
	(0.642)	(0.666)	(0.643)
SALESGROWTH	**0.382**	**0.374**	**0.374**
	(0.001)	(0.001)	(0.001)
CAPEX	1.317	1.272	1.283
	(0.134)	(0.147)	(0.145)
R&D	**2.238**	**2.147**	**2.141**
	(0.017)	(0.022)	(0.023)
LEV	**-0.812**	**-0.822**	**-0.824**
	(0.017)	(0.016)	(0.016)
CLSHELD	**0.401**	**0.408**	**0.406**
	(0.075)	(0.069)	(0.071)
SEGMENT	-0.019	-0.019	-0.019
	(0.575)	(0.576)	(0.571)
Fixed effects	Firm, Year	Firm, Year	Firm, Year
F-statistic	**11.030**	**11.080**	**10.970**
	(0.000)	(0.000)	(0.000)
R^2	0.858	0.859	0.859

Dependent Variable: Tobin's q (Worldscope)
Variable definitions (data source):
BUSYSCORE is a score that captures the busyness of a board (calculation as described), REPUTATIONSCORE is a score that captures the reputation/skill of a board (calculation as described), SALES is the natural logarithm of a firm's sales (Worldscope), SALESGROWTH is a firm's sales in t minus sales in t-1 to sales in t-1 (Worldscope), CAPEX is a firm's capital expenditures (additions to fixed assets) to total assets (Worldscope), R&D is a firm's research and development expense to total assets (Worldscope), LEV is a firm's total debt to total assets (Worldscope), CLSHELD is a firm's closely held shares to common shares outstanding (Worldscope), SEGMENT is a firm's number of product segments (Worldscope).
Notes:
Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

4.3.3 Bank boards

Prior literature offers several non-exclusive hypotheses for the occurrence of bank representation on boards of non-financial firms (Dittmann, Maug and Schneider (2010) provide a comprehensive literature review). First, bank representation could be actively sought by non-financial firms for their financial expertise. In this respect, bank representation might be beneficial for a firm by counteracting adverse selection in the process of taking debt. Second, bank representatives can serve as equity or debt monitors. In

the first case, they represent shareholder interests. In the latter case, they safeguard their own loans. Third, banks might be interested to place representatives on non-financial firms for their own interest. In doing so, they could profit from increasing their industry expertise. The knowledge gained could be used in contracting decisions with other members of that industry. Alternatively, banks might use the established relationships to sell other bank related services like M & A advisory services. Against this background, predictions of bank representation on firm performance are unequivocal and depend on the potential of conflicts of interest. This leads to the question on how far directors with bank affiliations are different from their fellow colleagues without bank affiliations. When safeguarding their loans, bank directors might urge management to be extra cautious, hindering decisions to undertake risky but profitable investments. On the other hand, they might not necessarily be better monitors but more knowledgeable in reorganizing the management preemptively before problems arise (Fauver and Fuerst, 2006). Their power might arise from threatening to cut off financing. Gorton and Schmid (2000) find evidence that suggests an improving effect of bank involvement on firm performance. Contrary, evidence of Dittmann, Maug and Schneider (2010) is mixed. In so far, these non-exclusive explanations do not allow a one-directional proposition on firm performance.

In order to assess the impact of having bank representatives on the board on Tobin's q, I estimate model (1) including the variables %BANKD and the indicator variable BANKBOARD, respectively. Results are displayed in Table 13. Both specifications show a positive and non-significant relationship. Since I do not further assess the channels of how bank representatives affect firm performance or other corporate aspects, I cannot infer on how the positive effect of bank representation positively influences firm performance for my sample firms. However, this finding at least puts the results from

the previous section into perspective indicating that multiple board appointments are not harmful per se. It also features the notion that bank representatives do not solely pursue bank interests. In this respect, my results are contrary to Dittmann, Maug and Schneider (2010). However, the aforementioned authors also find a positive and non-significant relationship between their board representation proxy and firm performance in their fixed firm and year specification.

Table 13: Bank boards and Tobin's q (n=453)

	(1)	(2)
Independent variable	**Coefficient**	**Coefficient**
%BANKD	0.549	
	(0.434)	
BANKBOARD		0.117
		(0.287)
SALES	0.038	0.035
	(0.731)	(0.753)
SALESGROWTH	**0.397**	**0.401**
	(0.000)	(0.000)
CAPEX	1.287	1.248
	(0.144)	(0.156)
R&D	**2.321**	**2.307**
	(0.013)	(0.014)
LEV	**-0.816**	**-0.808**
	(0.017)	(0.018)
CLSHELD	**0.407**	**0.407**
	(0.071)	(0.070)
SEGMENT	-0.018	-0.017
	(0.585)	(0.613)
Fixed effects	Firm, Year	Firm, Year
F-statistic	**10.990**	**11.010**
	(0.000)	(0.000)
R^2	0.858	0.858

Dependent Variable: Tobin's q (Worldscope)
Variable definitions (data source):
%BANKD is directors serving on a bank's supervisory or management board to board members, BANKBOARD is an indicator variable taking the value 1 if at least one director also serves on a bank's supervisory or management board, SALES is the natural logarithm of a firm's sales (Worldscope), SALESGROWTH is a firm's sales in t minus sales in t-1 to sales in t-1 (Worldscope), CAPEX is a firm's capital expenditures (additions to fixed assets) to total assets (Worldscope), R&D is a firm's research and development expense to total assets (Worldscope), LEV is a firm's total debt to total assets (Worldscope), CLSHELD is a firm's closely held shares to common shares outstanding (Worldscope), SEGMENT is a firm's number of product segments (Worldscope).
Notes:
Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

4.3.4 International boards

This part of the analysis focuses on directors that feature appointments on non-domestic boards. According to the inter-organizational perspective, firms featuring more affiliations to firms in foreign countries would use these networks to enhance their business activities in these countries. The underlying assumption is that interlocking serves as an instrument to regulate relationships between firms that are dependent on each other (Allen, 1974). This view stresses that interlocks can help to reduce environmental uncertainty in several ways. Schoorman, Bazerman and Atkin (1981) suggest that the organizational benefits arising from interlocking are related to (1) horizontal coordination, (2) vertical coordination, (3) personal skills and (4) diversity in board composition. This view emphasizes that board members are able to provide good advice and help to establish business contacts for the management (e.g. Koenig, Gogel and Sonquist, 1979; Hermalin and Weisbach, 1988). Accordingly, I expect a positive impact on firm performance. In order to propose a more specific measure of firm performance, I also investigate the relationship between the existence of additional board appointments in a foreign country and a firm's foreign sales, where I accordingly expect a positive relationship.

In order to assess the impact on firm performance of directors holding international directorships, I estimate model (1) with the percentage of international directors (%INTD) and the indicator variable INTBOARD. Results are displayed in Table 14. The coefficient of %INTD is negative. Although insignificant, the p-value of 0.104 indicates a strong negative relationship. The coefficient of INTBOARD is negative and non-significant.

Table 14: International boards and Tobin's q (n=453)

	(1)	(2)
Independent variable	**Coefficient**	**Coefficient**
%INTD	-0.621	
	(0.104)	
INTBOARD		-0.061
		(0.760)
SALES	0.030	0.030
	(0.783)	(0.787)
SALESGROWTH	**0.384**	**0.394**
	(0.001)	(0.000)
CAPEX	1.273	1.278
	(0.147)	(0.147)
R&D	**2.357**	**2.337**
	(0.012)	(0.013)
LEV	**-0.823**	**-0.795**
	(0.015)	(0.020)
CLSHELD	**0.414**	**0.410**
	(0.065)	(0.069)
SEGMENT	-0.014	-0.017
	(0.666)	(0.620)
Fixed effects	Firm, Year	Firm, Year
F-statistic	**11.080**	**10.970**
	(0.000)	(0.000)
R^2	0.859	0.857

Dependent Variable: Tobin's q (Worldscope)
Variable definitions (data source):
%INTD is directors with international board appointments to board members, INTBOARD is an indicator variable taking the value 1 if more than 50% or more of the directors have international board appointments, SALES is the natural logarithm of a firm's sales (Worldscope), SALESGROWTH is a firm's sales in t minus sales in t-1 to sales in t-1 (Worldscope), CAPEX is a firm's capital expenditures (additions to fixed assets) to total assets (Worldscope), R&D is a firm's research and development expense to total assets (Worldscope), LEV is a firm's total debt to total assets (Worldscope), CLSHELD is a firm's closely held shares to common shares outstanding (Worldscope), SEGMENT is a firm's number of product segments (Worldscope).
Notes:
Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

Results of regressing Tobin's q on %INTD do not confirm the idea that the presence of directors featuring ties to non-domestic boards enhances firm performance but on the contrary, it leads to a negative firm valuation. Yet, international directors might be beneficial to a firm by practical channels that originate from specific knowledge about foreign countries or advantages in initiating business relationships.

In order to propose a more specific measure to assess the impact of international directors on firm performance, I investigate the relationship between directors having inter-

national board appointments and foreign sales. I first assess the relationship in univariate tests. Correlations displayed in Table 7 show a significant positive correlation between the percentage of foreign sales and the percentage of international directors. Next, I subdivide the sample into firms with national and international orientation. I classify firms as nationally oriented if foreign sales are less than 20% of total sales and as internationally oriented if foreign sales equal or exceed 20% of total sales. The chosen separation value follows that used by Loderer and Peyer (2002). Dividing the sample into firms having and not having foreign sales does not materially change the results displayed in Table 15.

Table 15: Subdivision of the sample by foreign sales (n=453)

Variable	Mean	Median	Mean	Median	p-value (t-Test)	p-Value (Wilcoxon Test)
	National orientation (n=144) %Foreign sales < 20%		*International orientation (n=309) %Foreign sales >= 20%*			
MKTCAP	458.611	93.115	1,954.080	116.787	(0.000)	(0.021)
BOARDSIZE	9.493	8.000	10.560	8.000	(0.068)	(0.035)
BOARDTIES	9.903	5.500	14.078	9.000	(0.002)	(0.000)
%BUSY	0.235	0.200	0.276	0.250	(0.032)	(0.017)
NATBOARDTIES	8.215	5.000	11.320	7.000	(0.005)	(0.002)
INTBOARDTIES	1.688	0.000	2.757	1.000	(0.007)	(0.000)
%INTD	0.080	0.000	0.132	0.111	(0.000)	(0.000)

Variable definitions (data source):
MKTCAP is a firm's market capitalization in M€ (Worldscope), BOARDSIZE is the size of a firm's supervisory board and management board as of December 31 of the respective year (hand-collected), BOARDTIES is the number of ties established by board members to other boards, %BUSY is busy board members to board members, NATBOARDTIES is the number of ties established by board members to German supervisory or management boards, INTBOARDTIES is the number of ties established by board members to non-domestic supervisory or management boards, %INTD is international directors to board members.

Accordingly, internationally oriented firms have a higher percentage of directors holding international board appointments. However, the univariate results also illustrate that international sales are more prevalent for bigger firms that usually also have bigger boards. Hence, I test whether this relationship holds in a multivariate setting. In order to

investigate whether ties to international boards drive foreign sales, I estimate the following model specification:

Model (2)

$$\%FORSALES = \beta_1 \%VariableOfInterest + \beta_2 MKTCAP + \beta_3 SALESGROWTH + \beta_4 CAPEX + \beta_5 R\&D + \beta_6 LEV + \beta_7 CLSHELD + \beta_8 SEGMENT + \varepsilon$$

I use the percentage of foreign sales, measured as foreign sales to total sales, as the dependent variable. This is a widely used proxy to capture a firm's international activities (e.g. Zou and Stan, 1998; Katsikeas, Leonidou and Morgan, 2000). My variable of interest is either the percentage of international directors on the board (%INTD) or the indicator variable INTBOARD. The control variables that are conventionally used within this line of literature are comparably close to the variables used before. In order to ensure comparability with my other firm performance measures, I use the same control variables as in model (1). Accordingly, studies in this field include firm size into their consideration. A relationship is expected because small firms are expected to grow in their domestic market before taking risky operations abroad, while larger firms need to expand their business in order to increase sales. Also, larger firms realize more economies of scale and are associated with less risk in operations abroad (Bonaccorsi, 1992). However, prior findings on the relationship between foreign activities and size are mixed (Aaby and Slater, 1989). Size is measured as the natural logarithm of a firm's market capitalization (MKTCAP). The literature on international activities expects a positive relationship with research and development intensity (e.g. Benvignati, 1990; Braunerhjelm, 1996; Ito and Pucik, 1993). Research and development intensity is measured as research and development expense to total assets (R&D). I also include controls for capital expenditure (CAPEX), leverage (LEV), ownership structure (CLSHELD)

and the number of product segments (SEGMENT). All variables are provided by Worldscope.

Table 16 displays the results of estimating model (2). Specification (1) reports results of the base model without board variables. The model exhibits a reasonable fit with sales growth, capital expenditures, research and development intensity and ownership structure significantly contributing to the model fit. Specifications including the percentage of international directors (%INTD) and the indicator variable INTBOARD show a positive and non-significant relationship between the variables of interest and the percentage of foreign sales. Results might be biased due to a lack of control for a firm's foreign orientation. I address this concern by including foreign assets to total assets (Worldscope). I do not include the percentage of foreign assets throughout the investigation because the number of observations drops to 297 due to missing values for foreign assets. The coefficient of foreign asset intensity is highly significant while the other results are not materially different. Due to low correlations and VIFs, multicollinearity does not seem to be a problem when including the percentage of foreign assets.

Table 16: International board appointments and foreign sales (n=453)

	(1)	(2)	(3)
Independent variable	**Coefficient**	**Coefficient**	**Coefficient**
%INTD		0.019	
		(0.825)	
INTBOARD			0.008
			(0.849)
MKTCAP	0.002	0.002	0.002
	(0.893)	(0.884)	(0.884)
SALESGROWTH	**-0.038**	**-0.038**	**-0.038**
	(0.077)	(0.080)	(0.077)
CAPEX	**-0.436**	**-0.435**	**-0.434**
	(0.025)	(0.026)	(0.026)
R&D	**0.924**	**0.924**	**0.925**
	(0.000)	(0.000)	(0.000)
LEV	**0.149**	**0.150**	**0.149**
	(0.052)	(0.051)	(0.052)
CLSHELD	**-0.116**	**-0.116**	**-0.116**
	(0.020)	(0.020)	(0.020)
SEGMENT	0.010	0.010	0.010
	(0.170)	(0.174)	(0.173)
Fixed effects	Firm, Year	Firm, Year	Firm, Year
F-statistic	**27.890**	**27.620**	**27.620**
	(0.000)	(0.000)	(0.000)
R^2	0.938	0.938	0.938

Dependent Variable: Foreign sales to sales (Worldscope)
Variable definitions (data source):
%INTD is directors with international board appointments to board members, INTBOARD is an indicator variable taking the value 1 if more than 50% or more of the directors have international board appointments, MKTCAP is the natural logarithm of a firm's market capitalization (Worldscope), SALESGROWTH is a firm's sales in t minus sales in t-1 to sales in t-1 (Worldscope), CAPEX is a firm's capital expenditures (additions to fixed assets) to total assets (Worldscope), R&D is a firm's research and development expense to total assets (Worldscope), LEV is a firm's total debt to total assets (Worldscope), CLSHELD is a firm's closely held shares to common shares outstanding (Worldscope), SEGMENT is a firm's number of product segments (Worldscope).
Notes:
Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

Results of regressing international activities on %INTD puts the prior results concerning firm performance measured by Tobin's q only partly into perspective. Although positive, the association is non-significant and does not suggest that directors having board appointments on non-domestic boards enhance firm performance by facilitating foreign activities.

4.3.5 Additional tests

Alternative profitability measures

I further scrutinize the relationship between multiple board appointments and firm performance by using other firm profitability measures as dependent variable. Following prior literature, I use return on assets (ROA) and return on sales (ROS) (Fich and Shivdasani, 2006; Dittmann, Maug and Schneider, 2010). Results are shown in Table 17.

I find a negative relationship between %BUSYD, %COSD and %BANKD and the dependent variables. The coefficients of %COSD (when regressing ROA on %COSD) and %BANKD are significant. The coefficients of %INTD are positive and significant. Overall, these results further substantiate the notion that multiple board appointments are harmful for firm performance. However, the results concerning directors featuring international board appointments suggest a positive impact on accounting based performance measures.

Table 17: Multiple board appointments and firm profitability (n=453)

	Busy		COS		Bank		International	
	ROA	ROS	ROA	ROS	ROA	ROS	ROA	ROS
Independent variable	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
%BUSYD	-0.003	-0.066						
	(0.958)	(0.671)						
%COSD			**-0.146**	-0.348				
			(0.061)	(0.144)				
%BANKD					**-0.268**	**-0.947**		
					(0.038)	(0.017)		
%INTD							**0.185**	**0.909**
							(0.009)	(0.000)
SALES	0.030	**0.171**	0.029	**0.170**	0.026	**0.158**	0.030	**0.172**
	(0.146)	(0.006)	(0.149)	(0.007)	(0.198)	(0.011)	(0.139)	(0.005)
SALESGROWTH	**0.044**	0.033	**0.045**	0.035	**0.042**	0.025	**0.046**	0.044
	(0.033)	(0.600)	(0.029)	(0.576)	(0.042)	(0.686)	(0.024)	(0.465)
CAPEX	0.091	-0.127	0.083	-0.152	0.091	-0.133	0.095	**-0.112**
	(0.575)	(0.799)	(0.608)	(0.758)	(0.573)	(0.788)	(0.553)	(0.816)
R&D	-0.142	-0.620	-0.136	-0.596	-0.129	-0.564	-0.145	-0.625
	(0.413)	(0.240)	(0.428)	(0.257)	(0.452)	(0.280)	(0.397)	(0.222)
LEV	**-0.224**	**-0.518**	**-0.220**	**-0.503**	**-0.213**	**-0.475**	**-0.215**	**-0.469**
	(0.000)	(0.007)	(0.001)	(0.009)	(0.001)	(0.013)	(0.001)	(0.012)
CLSHELD	-0.017	0.039	-0.011	0.055	-0.016	0.043	-0.019	0.032
	(0.683)	(0.762)	(0.792)	(0.664)	(0.691)	(0.735)	(0.650)	(0.793)
SEGMENT	0.008	0.016	0.007	0.014	0.008	0.019	0.007	0.013
	(0.206)	(0.387)	(0.282)	(0.472)	(0.170)	(0.321)	(0.249)	(0.492)
Fixed effects	Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year
F-statistic	**8.740**	**9.430**	**8.860**	**9.500**	**8.890**	**9.640**	**8.990**	**10.140**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.827	0.838	0.829	0.839	0.830	0.841	0.831	0.848

Dependent Variables: ROA is EBIT to total assets (Worldscope), ROS is Sales to total assets (Worldscope).

Variable definitions (data source):

%BUSYD is busy board members to board members, %COSD is board members holding the position of a chair of supervisory board to board members, %BANKD is directors serving on a bank's supervisory or management board to board members, %INTD is directors with international board appointments to board members, SALES is the natural logarithm of a firm's sales (Worldscope), SALESGROWTH is a firm's sales in t minus sales in t-1 to sales in t-1 (Worldscope), CAPEX is a firm's capital expenditures (additions to fixed assets) to total assets (Worldscope), R&D is a firm's research and development expense to total assets (Worldscope), LEV is a firm's total debt to total assets (Worldscope), CLSHELD is a firm's closely held shares to common shares outstanding (Worldscope), SEGMENT is a firm's number of product segments (Worldscope).

Notes:

Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

Endogeneity

As pointed out earlier, endogeneity constitutes a problem throughout the study. One way to address endogeneity is to use instrumental regressions. In doing so, adequate instruments need to be found. Roughly, adequate means that the instrument is correlated with the endogenous regressor but is uncorrelated with the error term of the structural equation. Utilizing unsuitable instruments will not solve the endogeneity problem. On the contrary, estimates might be even more biased (Larcker and Rusticus, 2010). Consequently, identifying appropriate instruments is essential. I thought about drawing on director compensation but results of the first stage were unsatisfactory.

Another way of addressing endogeneity is to include lagged variables. The rationale behind this idea is that if the lagged variable is able to explain the dependent variable, the causality runs from the lagged variable to the dependent variable. Using this approach is comparably common in this line of literature (e.g. Fich and Shivdasani, 2006; akin Jiraporn et al., 2009). I re-run all regressions and exchange the board variables by their one year lagged value. Since I do not have board variables for the year 2003, I re-run the regressions with 302 observations for two cross-sectional years. Since I only investigate two years, I only include fixed year effects but not fixed firm effects. Alternatively, I might have used the t+1 values of all other explanatory variables. Both approaches come with limitations. When using the t+1 values, I contrast the time period 2005-2007 with my original setting of 2004-2006. In order to maintain comparability, I favor the alternative. However, this results in loosing observations, which reduces statistical power. All regressions are provided in the Appendix.

Although the endogeneity tests confirm many of the preceding findings, the tests also reveal some differences. Particularly, when assessing the Reputation Hypothesis (Ta-

ble A.1) with the presence of chairmen form other supervisory boards (%COS), I find a negative and significant relationship (before positive and non-significant). Also, results from Table A.3 show a negative and significant relationship between Tobin's q and BUSYSCORE (before negative and non-significant) and REPUTATIONSCORE (before negative and marginally non-significant). These results further substantiate a negative relationship between multiple board appointments and firm performance and that this relationship is not counteracted by director skills that are expected to have a positive influence on firm performance.

Notably, the endogeneity tests show differing results in the following cases: The tests reveal a positive and non-significant relationship between the number of additional board appointments held by the COS (before negative and significant) and CEO (before negative and insignificant). The coefficient of %BANKD is now negative and marginally non-significant (before positive and non-significant). The coefficient of %INTD is now positive and non-significant (before negative and marginally non-significant).

Taken all together, the endogeneity tests further substantiate the notion that multiple board appointments harm firm performance. Since I include the lagged board variables, the results suggest that the causality runs from the board variables to firm performance and not that firms with bad performance attract directors with multiple board appointments. However, the endogeneity tests also produce some mixed results which indicate that the results need to be interpreted with caution. Whether the mixed results originate from lagging the variables or the decreased power of statistical inferences due to the exclusion of one cross-section cannot be assessed conclusively.

Employee representation

A particularity of the German board system is the legally coded employee representation on the supervisory board. Theoretical implications of codetermination rights on firm value are unclear. Since codetermination is imposed on firms, a firm's resulting governance might deviate from its efficient structure that would materialize naturally. However, legally coded employee representation might mitigate frictions that for example arise from coordination problems stemming from unilaterally introduced employee representation (Fauver and Fuerst, 2006). Gorton and Schmid (2004) find that an increase in employee representation from one-third of the supervisory board size to one-half destroys firm value. Results of Fauver and Fuerst (2006) suggest the existence of an inverse U-shaped relationship between employee representation and firm value.

One possibility to test whether employee representation influences my results would be by introducing a control variable that measures the percentage of employee representation on the board. However, employee representation is regulatory driven and depends on a firm's total employees. Depending on the number of employees, it will be around zero, one-third and half of the supervisory board's size. Hence, I follow Dittmann, Maug and Schneider (2010). In their study that deals with bank representation on the board, they exclude employee representatives from their analysis. Doing so imposes restrictions on my sample because unfortunately, not all firms report which of their supervisory directors are employee representatives. This gives rise to the danger to confound firms that are not required to have employee representation on their board with firms that do not disclose it. In order to avoid this problem, I delete all observation that have more than 500 employees but provide no information on employee representation. This leads to a sample of 315 firm year observations (before: 453 firm year observations).

Of course, this substantially limits comparability with results of my base sample. Consequently, I do not re-run all of my regressions but focus on specifications where I try to disentangle the Busyness and the Reputation Hypotheses using the busyness and reputations score. My results are not materially different from the previous results and are consistent with the notion that multiple board appointments are harmful for firm performance. The coefficients are negative but non-significant at common significance levels (Table A.8). However, I refrain from over interpreting these results due to the mentioned shortcomings.

5 Summary and conclusions

I investigate the effect of multiple board appointments on firm performance using a sample of publicly listed German firms. The incidence of multiple board appointments is interesting in the light of competing explanations for their existence and differing implications for firm performance. At the same time, a sound understanding of their existence and their implications is of relevance in the endeavor to develop appropriate corporate governance guidelines. The topic has already received a great deal of attention from the academic side. I deploy measures used in prior literature to classify directors holding multiple board appointments and contribute to the literature by investigating a new aspect: board appointments held in non-domestic firms.

I first contrast the Busyness Hypothesis and the Reputation Hypothesis. Explicitly pointing towards the circumstance that many of my variables of interest are non-significant at common significance levels, the results of the first part of the analysis support the Busyness Hypothesis and the notion that multiple board appointments are harmful for firm performance. This finding is not counteracted by director skills that are expected to enhance firm performance. These findings can be interpreted in three ways.

First, it might reflect the inappropriateness of my chosen proxy to reflect director skills. Second, the result can be seen to be in line with Biehler and Ortmann (1985) who argue that the (supervisory) board is also perceived as an instrument of representation. Consequently, being the chair of a supervisory board on another firm might be used as a signal to reassure stakeholders but does not necessarily mean that the individual is particularly suitable to fulfill its task. Third, it might reflect the circumstance that the individual is too busy fulfilling its task since being the chairman of a supervisory board is particularly time consuming. The latter argument is partly fuelled by the circumstance that I find a negative and significant relationship between additional seats held by the sample firms' chairman of the supervisory board and firm performance. I find no such association between additional seats held by the CEO.

In the second part of the analysis, I investigate the effect of having bank representatives on the board on firm performance. I find a positive and non-significant relationship, and a negative and significant relationship between return on assets and return on sales. Since I do not investigate possible channels of this effect, I refrain from speculating of how bank representation affects firm performance. Yet, two things should be noted. First, the finding suggests that multiple board appointment are not harmful for firm performance per se and puts the finding from the first part into perspective. Second, it should be mentioned that accounting-based measures are less suitable in capturing director expertise and networks (Hillman, 2005). In this respect, my findings suggest a positive market valuation but a negative relationship with historical performance. Hence, a more cautious and a more conservative investing style naturally come into mind and might be worth to be investigated.

In the third part of the analysis, I investigate the effect of international directors on firm performance. I call these individuals “international directors”, although I do not draw on their nationality but the circumstance that they work on international, i.e. non-domestic boards. I find a negative and marginally non-significant impact on Tobin’s q. However, I find a positive and significant relationship with return on assets and return on sales. I also find a positive but weak relationship with foreign activities. Of course, these mixed results are puzzling. Yet, they are consistent with my prior findings whereby busy directors negatively affect firm performance. Directors with international board appointments might be negatively valued by the market since they are associated with over-commitment for example due to an increased work load that might stem from preparing documents that are in a foreign language or from considerable more traveling time. Yet, the positive relationship with the backward looking profitability measures might be explained in the light of facilitating operative transactions and contracting by the help of a broader network. This explanation is also in line with the positive relationship between international directors and foreign activities. Still, results are too mixed to be over interpreted.

Overall, the results of the study are not unequivocal but the majority of the found evidence points towards the notion that multiple board appointments have a negative impact on firm performance as measured by Tobin’s q. Yet, the results also illustrate the ambiguity of the relationship between multiple board appointments and firm performance. Although multiple board appointments are negatively connotated, their influence on firm performance is not negative per se. In this respect, the results support the idea that board effectiveness cannot be ensured by putting restrictions on multiple board appointments. Rather, active board members need to assess in which form board effectiveness might benefit from appointing a certain director to the board. At the same time,

appointed directors need to assess whether they are able to fulfill all their responsibilities when taking any additional board appointments. This might seem like a somewhat naïve statement in the light of self-interests and selfish behavior and directly leads to the question whether other control mechanisms could be helpful in ensuring that board directors do not take too many board appointments. On the one hand, this might be achieved by self-imposed corporate guidelines. The advantage of self-imposed corporate guidelines lies in higher flexibility. For example, smaller firms might allow more multiple board appointments than bigger firms, or the guidelines might be more specific with regard to activities on other boards. On the other hand, directors need to question board effectiveness constantly and directors need to assess whether board effectiveness suffers from directors that burden too many responsibilities on themselves.

My findings are prone to several limitations. An essential step within the investigation is the classification of the directors and the boards. Several problems arise in this endeavor. The Busyness Hypothesis draws on time restrictions of overcommitted directors. In this respect, classifying directors as busy measured by the number of directorships is objectively comprehensible. At the same time, necessary data is available in the financial statements. The Reputation Hypothesis draws on benefits that materialize from skills, experience and networks. Finding an objectively comprehensible proxy that reflects the aforementioned director characteristics is much more complicated. Consequently, the used proxy variables are prone to noise. Also, work and decision-finding processes within a board are not observable for outsiders. Hence, it is difficult to assess whether it is more severe when certain individuals are busy, and also, what additional work load causes their busyness. To some extent, I address these concerns by building scores that aim at alleviating the aforementioned shortcomings. Still, these scores can only cover a limited range of an individual’s characteristics and thus, are prone to in-

completeness. Also, for the busyness score I use weights that are not chosen with regard to a clear theoretical basis but feature a certain erratic component in order to symbolize that different tasks exhibit different time requirements.

Data availability exacerbates test designs. For example, it seems crucial to develop extensive but thorough measures to classify directors. This does not only comprise educational background and work experience but more complex measures as inclusion in networks. This is no easy endeavor. Hwang and Kim (2009) demonstrate that ties also arise from similar regional or educational origins. Other possible dimensions are prior membership to the management (Bresser and Thiele, 2008) or union affiliations (Fauver and Fuerst, 2006). Also, the observation period is of great importance for example in order to conclude on causality. It is also difficult to assess how long a tie must exist in order to affect e.g. foreign sales. This points towards the necessity for longitudinal studies over a reasonably long period. An issue related to this concern is that of broken ties. It is unclear how long a tie needs to be maintained. After the initial contact has been established, other means of communication could be used.

Econometric issues exacerbates the validity of inferences. A common difficulty in this line of research arises from endogeneity. The causality between firm performance and multiple board appointments can work in both ways. On the one hand, board appointments can lead to overcommitted directors which can be harmful for the firm. On the other hand, firms exhibiting poor performance might actively search for skilled directors and offer them an additional appointment. I try to address the problem of endogeneity by re-running my regressions including the lag of my variables of interest. Results are not entirely robust to the alternative model specification, indicating that endogeneity might confound my results.

The stream of literature dealing with multiple board appointments is growing. The incidence of multiple board appointments, especially in Germany, still offers ample research questions. With regard to subsequent research, it seems reasonable to take a step back and get a more sophisticated understanding of what determines the number of seats held on an individual level. Then, a more sophisticated understanding on what determines the board composition is needed. As shown in prior literature, it is difficult to predict the impact of directors holding multiple board appointments on firm characteristics. To some extent, this is due to the manifold possible impacts that are conceivable. In this respect, it seems vital to propose a specific measure that is able to clearly capture effects of holding multiple board appointments.

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Appendix

Table A.1: Busyness vs. Reputation Hypothesis (n=302)

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variable	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
%BUSYD	-0.388				-0.069	
	(0.157)				(0.823)	
BUSYBOARD		-0.090				-0.012
		(0.528)				(0.936)
%COS			**-1.289**		**-1.231**	
			(0.009)		(0.027)	
COSBOARD				**-0.213**		**-0.211**
				(0.033)		(0.042)
SALES	0.010	-0.001	0.014	0.018	0.015	0.018
	(0.706)	(0.960)	(0.580)	(0.486)	(0.556)	(0.489)
SALESGROWTH	**0.791**	**0.817**	**0.776**	**0.773**	**0.774**	**0.774**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CAPEX	0.271	0.296	0.374	0.534	0.362	0.529
	(0.786)	(0.767)	(0.705)	(0.592)	(0.714)	(0.597)
R&D	**2.973**	**2.798**	**2.957**	**2.837**	**2.992**	**2.847**
	(0.002)	(0.004)	(0.002)	(0.003)	(0.002)	(0.003)
LEV	**-1.120**	**-1.116**	**-1.139**	**-1.161**	**-1.138**	**-1.160**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CLSHELD	-0.010	0.009	-0.045	-0.025	-0.046	-0.025
	(0.954)	(0.962)	(0.804)	(0.889)	(0.802)	(0.893)
SEGMENT	0.042	0.041	0.045	0.039	0.045	0.040
	(0.184)	(0.191)	(0.152)	(0.207)	(0.151)	(0.207)
Fixed effects	Year	Year	Year	Year	Year	Year
F-statistic	**129.460**	**128.590**	**132.140**	**130.850**	**119.740**	**118.550**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.195	0.191	0.208	0.202	0.209	0.202

Dependent Variable: Tobin's q (Worldscope)

Notes:

Board variables are lagged by one year.

Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

Table A.2: Appointments held by COS and CEO and Tobin's q (n=302)

	(1)	(2)	(3)
Independent variable	**Coefficient**	**Coefficient**	**Coefficient**
COSSEATS	0.003		0.003
	(0.895)		(0.908)
NONCOSSEATS	**-0.126**		
	(0.087)		
CEOSEATS		-0.024	-0.022
		(0.608)	(0.645)
NONCEOSEATS		-0.082	
		(0.162)	
NONCOSCEOSEATS			-0.101
			(0.107)
SALES	0.017	0.016	0.017
	(0.533)	(0.595)	(0.567)
SALESGROWTH	**0.784**	**0.779**	**0.783**
	(0.000)	(0.000)	(0.000)
CAPEX	0.258	0.218	0.214
	(0.795)	(0.827)	(0.831)
R&D	**3.174**	**3.088**	**3.155**
	(0.001)	(0.002)	(0.001)
LEV	**-1.107**	**-1.120**	**-1.100**
	(0.000)	(0.000)	(0.000)
CLSHELD	-0.020	-0.016	-0.014
	(0.913)	(0.929)	(0.940)
SEGMENT	0.042	0.043	0.043
	(0.182)	(0.174)	(0.178)
Fixed effects	Year	Year	Year
F-statistic	**117.870**	**117.560**	**107.760**
	(0.000)	(0.000)	(0.000)
R^2	0.198	0.197	0.199

Dependent Variable: Tobin's q (Worldscope)

Notes:

Board variables are lagged by one year.

Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

Table A.3: Busyness score vs. Reputation score (n=302)

	(1)	(2)	(3)
Independent variable	**Coefficient**	**Coefficient**	**Coefficient**
BUSYSCORE	**-0.073**		-0.020
	(0.068)		(0.745)
REPUTATIONSCORE		**-0.230**	-0.187
		(0.035)	(0.274)
SALES	0.012	0.016	0.016
	(0.630)	(0.547)	(0.530)
SALESGROWTH	**0.774**	**0.789**	**0.783**
	(0.000)	(0.000)	(0.000)
CAPEX	0.234	0.165	0.170
	(0.814)	(0.868)	(0.865)
R&D	**3.087**	**3.605**	**3.543**
	(0.001)	(0.001)	(0.001)
LEV	**-1.131**	**-1.109**	**-1.114**
	(0.000)	(0.000)	(0.000)
CLSHELD	-0.025	-0.025	-0.028
	(0.890)	(0.890)	(0.878)
SEGMENT	0.047	0.043	0.045
	(0.135)	(0.167)	(0.158)
Fixed effects	Year	Year	Year
F-statistic	**130.180**	**130.780**	**118.540**
	(0.000)	(0.000)	(0.000)
R^2	0.199	0.202	0.202

Dependent Variable: Tobin's q (Worldscope)

Notes:

Board variables are lagged by one year.

Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

Table A.4: Bank boards and Tobin's q (n=302)

	(1)	(2)
Independent variable	**Coefficient**	**Coefficient**
%BANKD	-1.036	
	(0.112)	
BANKBOARD		**-0.200**
		(0.089)
SALES	0.018	0.023
	(0.518)	(0.421)
SALESGROWTH	**0.796**	**0.801**
	(0.000)	(0.000)
CAPEX	0.287	0.238
	(0.773)	(0.811)
R&D	**2.754**	**2.765**
	(0.004)	(0.004)
LEV	**-1.130**	**-1.145**
	(0.000)	(0.000)
CLSHELD	-0.013	0.008
	(0.945)	(0.966)
SEGMENT	0.046	0.044
	(0.147)	(0.158)
Fixed effects	Year	Year
F-statistic	**129.740**	**129.940**
	(0.000)	(0.000)
R^2	0.196	0.197

Dependent Variable: Tobin's q (Worldscope)

Notes:

Board variables are lagged by one year.

Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

Table A.5: International boards and Tobin's q (n=302)

	(1)	(2)
Independent variable	**Coefficient**	**Coefficient**
%INTD	0.102	
	(0.775)	
INTBOARD		**0.790**
		(0.005)
SALES	-0.004	-0.003
	(0.887)	(0.914)
SALESGROWTH	**0.809**	**0.765**
	(0.000)	(0.000)
CAPEX	0.316	0.180
	(0.752)	(0.855)
R&D	**2.604**	**1.721**
	(0.011)	(0.084)
LEV	**-1.122**	**-1.119**
	(0.000)	(0.000)
CLSHELD	0.009	0.050
	(0.960)	(0.782)
SEGMENT	0.040	0.051
	(0.208)	(0.104)
Fixed effects	Year	Year
F-statistic	**128.420**	**132.710**
	(0.000)	(0.000)
R^2	0.190	0.211

Dependent Variable: Tobin's q (Worldscope)

Notes:

Board variables are lagged by one year.

Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

Table A.6: International board appointments and foreign sales (n=302)

	(1)	(2)
Independent variable	**Coefficient**	**Coefficient**
%INTD	**0.398**	
	(0.001)	
INTBOARD		0.108
		(0.273)
MKTCAP	**0.030**	**0.035**
	(0.001)	(0.000)
SALESGROWTH	**-0.168**	**-0.171**
	(0.008)	(0.008)
CAPEX	-0.348	-0.346
	(0.310)	(0.322)
R&D	0.032	0.292
	(0.925)	(0.392)
LEV	0.089	0.105
	(0.353)	(0.282)
CLSHELD	0.020	0.013
	(0.747)	(0.844)
SEGMENT	0.012	0.014
	(0.268)	(0.211)
Fixed effects	Firm, Year	Firm, Year
F-statistic	**70.230**	**67.150**
	(0.000)	(0.000)
R^2	0.121	0.093

Dependent Variable: Foreign sales to sales (Worldscope)

Notes:

Board variables are lagged by one year.

Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

Table A.7: Multiple board appointments and firm profitability (n=302)

	Busy		COS		Bank		International	
Independent variable	**ROA Coefficient**	**ROS Coefficient**	**ROA Coefficient**	**ROS Coefficient**	**ROA Coefficient**	**ROS Coefficient**	**ROA Coefficient**	**ROS Coefficient**
%BUSYD	**-0.147**	**-0.325**						
	(0.000)	(0.000)						
%COSD			**-0.268**	**-0.440**				
			(0.000)	(0.007)				
%BANKD					-0.113	-0.094		
					(0.232)	(0.660)		
%INTD							**-0.136**	**-0.385**
							(0.008)	(0.001)
SALES	**0.019**	**0.035**	**0.018**	**0.031**	**0.017**	**0.027**	**0.017**	**0.031**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)
SALESGROWTH	**0.080**	0.051	**0.080**	0.055	**0.085**	0.065	**0.088**	0.071
	(0.002)	(0.383)	(0.002)	(0.355)	(0.001)	(0.277)	(0.001)	(0.231)
CAPEX	0.161	0.298	0.191	0.359	0.177	0.339	0.190	0.368
	(0.254)	(0.355)	(0.175)	(0.269)	(0.220)	(0.303)	(0.183)	(0.255)
R&D	**-0.695**	**-2.267**	**-0.742**	**-2.400**	**-0.789**	**-2.480**	**-0.644**	**-2.063**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
LEV	**-0.145**	**-0.250**	**-0.149**	**-0.257**	**-0.146**	**-0.252**	**-0.144**	**-0.247**
	(0.000)	(0.006)	(0.000)	(0.005)	(0.000)	(0.006)	(0.000)	(0.006)
CLSHELD	0.020	0.051	0.016	0.047	0.024	0.063	0.021	0.050
	(0.437)	(0.385)	(0.549)	(0.429)	(0.362)	(0.298)	(0.426)	(0.401)
SEGMENT	0.007	0.011	**0.007**	0.011	0.007	0.010	0.007	0.010
	(0.106)	(0.270)	(0.093)	(0.273)	(0.120)	(0.334)	(0.145)	(0.333)
Fixed effects	Year	Year	Year	Year	Year	Year	Year	Year
F-statistic	**23.020**	**13.400**	**23.120**	**12.560**	**20.820**	**11.540**	**21.800**	**13.080**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R^2	0.294	0.311	0.295	0.297	0.263	0.280	0.277	0.306

Dependent Variables: ROA is EBIT to total assets (Worldscope), ROS is Sales to total assets (Worldscope).

Notes:

Board variables are lagged by one year.

Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.

Table A.8: Busyness score vs. Reputation score without employee representatives (n=315)

	(1)	(2)
Independent variable	**Coefficient**	**Coefficient**
BUSYSCORE	-0.038	
	(0.476)	
REPUTATIONSCORE		-0.211
		(0.168)
SALES	-0.102	-0.105
	(0.479)	(0.461)
SALESGROWTH	**0.577**	**0.564**
	(0.000)	(0.000)
CAPEX	0.235	0.275
	(0.830)	(0.801)
R&D	**2.281**	**2.177**
	(0.034)	(0.043)
LEV	-0.507	-0.474
	(0.242)	(0.272)
CLSHELD	**0.632**	**0.664**
	(0.029)	(0.021)
SEGMENT	-0.033	-0.031
	(0.434)	(0.455)
Fixed effects	Firm, Year	Firm, Year
F-statistic	**8.020**	**8.090**
	(0.000)	(0.000)
R^2	0.832	0.833

Dependent Variable: Tobin's q (Worldscope)

Notes:

BUSYSCORE and REPUTATIONSCORE are calculated excluding employee representatives.

Bold typeset denotes significant difference from zero (two-sided t-test) at significance levels of 0.01, 0.05 and 0.10, respectively; p-values are given in parentheses.