

ACADEMIC EXPERTISE ON CORPORATE BOARDS AND FINANCIAL REPORTING QUALITY

Trainor, Joseph
St. John's University

Finnegan, James
St. John's University

ABSTRACT

This study investigates the role of academics serving on corporate boards and firms' financial reporting quality. Our study is motivated by the recent increase in the number of academics serving on corporate boards and the recent focus placed on corporate boards to increase governance standards in light of the corporate accounting scandals of the late 1990s and early 2000s. We test two competing hypotheses on the association between academics and accounting quality. First, reputational capital theory suggests that academics protect their reputational capital by leveraging their academic expertise to improve firms' financial reporting quality. Economic bonding theory; conversely, suggests that academics are economically connected to management and may allow managers to engage in opportunistic financial reporting. We find evidence consistent with reputational capital theory. Specifically, we find that firms with more academics directors have lower discretionary accruals. Our study contributes to the growing stream of literature examining board member composition and financial reporting quality. The results may be of particular interest to regulators, capital market participants, and academics. Regulators may be interested because the findings have policy implications when considering financial reporting quality and corporate governance characteristics. Investors and creditors may find the results useful in evaluating investment decisions. Finally, academics looking to broaden their experiences by serving on corporate boards may find the information useful in making decisions on whether to serve on corporate boards.

INTRODUCTION

Recent trends in corporate board composition indicate an increase in the appointment of independent directors with diverse backgrounds. Although the extant literature has considered the effects of legal and accounting expertise on financial reporting quality, the literature has not examined the role of academics serving on corporate boards. In this paper, we investigate the role of academics serving on corporate boards and the effect these directors have on financial reporting quality. We test two competing hypotheses on the possible association between academics and firms' accounting quality. Reputational capital theory suggests that academics seeking to protect their reputation capital would leverage their academic expertise to improve firms' financial reporting quality. Economic bonding theory, on the other hand, suggests that directors are economically connected to management and may allow management to pursue opportunistic accounting choices to protect that economic bond. We identify academic directors using the RiskMetrics database of corporate directors. The RiskMetrics universe covers most of the value-weighted market and represents more than 93% of the total market capitalization of the combined New York Stock Exchange (NYSE), American Stock Exchange (AMEX), and

NASDAQ markets. Using discretionary accruals as a measure of financial reporting quality, we examine whether the presence of academic directors on firms' Board of Directors is associated with higher financial reporting quality. We control for the level of accounting expertise on the Board of Directors as well as other factors known to be associated with firms' financial reporting quality. We find that firms with academic directors have higher quality financial reporting (less discretionary accruals). This result is consistent with the reputational capital theory. Our study contributes to the growing stream of literature examining board member composition and financial reporting quality.

BOARD MEMBERS AND FINANCIAL REPORTING QUALITY

Due to the separation of ownership and control in modern corporations, agency conflicts arise between managers and shareholders (Jensen and Meckling, 1976). Due to this separation, managers have myriad incentives to disclose misleading financial information. For example, managers may use discretionary accounting choices for personal monetary gain in the form of increased bonuses, equity incentives, and stock price appreciation. Shareholders are generally in a position of information disadvantage and suffer from the perils of information asymmetry. This agency conflict give rise to agency costs that firms' seek to minimize through contracting and by implementing corporate governance measures (e.g. independent directors, audits, etc.). Prior research suggests that firms' governance structures significantly impact the quality of firms' financial reporting and overall information environment. Specifically, the extant literature identifies a number of factors that are associated with financial reporting quality such as board member independence, audit committee quality, and auditor quality measures.

Significant recent research has been devoted to the association between board member characteristics and firms' financial reporting quality, especially in regards to those directors serving on firms' audit committees. The role of the audit committee is to supervise the financial reporting process and to serve as a buffer between management and the firm's auditor. The duties of the audit committee typically include such things as hiring and supervising the firm's auditor; approving any non-audit services to be provided by the auditor; overseeing the internal audit function; and receiving confidential employee complaints about the financial reporting process or internal controls.

The findings from the stream of research examining board member characteristics suggest that more independent directors and more experienced directors are positively associated with the quality of firms' financial reporting. For example, Klein (2002) examines board member independence and audit committee independence and finds a positive association between the independence of both board members and audit committee members and firms' financial reporting quality. Similarly, Bedard et al. 2004, examine audit committee expertise, independence, and activity on aggressive earning management and find that directors with more expertise and independence are positively associated with higher financial reporting quality. Xie, Davidson, and DaDalt (2003) also find that board members with prior corporate or investment banking backgrounds are associated with smaller discretionary accruals (higher earnings quality). Collectively, these studies suggest that expertise and independence of individual board members are important factors in constraining the propensity of managers to engage in earnings management.

ACADEMICS AS INDEPENDENT EXPERTS

Academics are generally regarded as intellectual leaders in their given subject-matter discipline and also experts because of the skills necessary to enter and work in the professoriate (i.e. research and other quantitative reasons skills). A main function of members of the professoriate in the U.S., in addition to teaching and research in one's given discipline, is service on

committees and on other governance structures (e.g. faculty senate). Service is typically performed by faculty members at the University, College and Department levels. Service may consist of serving and chairing on committees. In these regards, academics board members are in a unique position to provide additional expertise and leadership on corporate boards.

In addition, recent studies also suggest a strong feeling among many professors that their expertise is under-utilized (Macfarlane, 2011). Therefore, academics are uniquely positioned to provide expertise to corporate boards. Finally, academics given the nature of their full-time employment in academia, are presumably serving on corporate boards for reasons other than strictly monetary compensation. This independence is likely to make academics more effective in firms' corporate governance structures.

HYPOTHESIS DEVELOPMENT

The study most closely related to our study is Krishnan, Wen, and Zhao (2011), which examines the role of legal expertise on firms' corporate boards and find that directors with legal expertise on the audit committee are associated with higher financial reporting quality. The authors argue that firms' financial reporting quality is associated with litigation risk due to both the current regulatory environment, but also due to shareholder lawsuits. Consistent with this argument, the authors hypothesize that the legal expertise on firms' corporate boards will better enable the corporate board to discuss matters pertaining to a legal issue with firms' corporate lawyers. In other words, lawyers serving on the board allow the board to process legal information with greater ease.

We extend Krishnan et al. 2011, by considering the effects of academic expertise on firms' Board of Directors and financial reporting quality. As discussed above, prior evidence suggests that director expertise and independence are positively associated with firms' financial reporting quality. Academic directors are subject matter experts. In our sample, we note that many of the academic directors hold advance degrees in the subject matter the firm actively engages in business. For example, we found a number of faculty members from medical programs serving on boards of pharmaceuticals and other medical related enterprises. In addition, to subject-matter expertise, academic directors are generally independent of the firm due to their full-time employment in academia. Finally, academic directors also bring a wealth of experience from working on committees. As noted above, a substantial portion of many academic's duties include service on various committees. All these factors of expertise, independence, and experience put academics in a unique position to contribute to the overall governance of the corporations on which they serve.

We consider two possible theories to explain how academic expertise may affect firms' financial reporting quality, reputation capital theory and economic bonding theory. Reputation capital theory suggests that academics and others seeing to protect their reputation capital will not acquiesce to managers' demands to report opportunistically. For example, while examining audit fees and the economic bond created between the auditor and the client, Larcker and Richardson (2004) find results consistent with reputation concerns being the primary determinant of auditor behavior with respect to limiting managers' opportunistic accounting choices. This finding is consistent with Reynolds and Francis (2001) who find that auditors are more likely to report conservatively for larger clients than smaller clients suggesting that reputation protection dominates auditor behavior.

Economic bonding theory on the other hand suggests that academics have an economic incentive to protect their bond with management for future reappointment to the board. Management is quite powerful when it comes to the nomination and reappointment of directors. First, although

shareholders vote for the election of directors, most shareholders do not attend the meetings at which directors are elected. What typically happens is that shareholders sign a proxy granting management the power to cast their vote for directors. This practice effectively gives the decision of re-election of directors to management. In addition, many state laws limit shareholders rights to elect, but not nominate directors (Johnson, Daily, and Ellstrand, 1996).

We argue that if academic directors are more concerned about reputation capital than remuneration, then these directors are more likely to leverage their expertise, independence, and work experience to improve firms' financial reporting quality. On the other hand, if academics are focused on the economic bond between themselves and the firm due to the fees they earn from their position on the Board of Directors, then academic directors would be less likely to serve as a governance mechanism in overseeing management. More formally, our hypothesis, stated in the null, is as follows:

Hypothesis: Academic director expertise on corporate boards is not associated with firms' accounting quality.

A positive association between academics serving on corporate boards and financial reporting quality would be consistent with the reputational capital theory, while a negative association between academics and financial reporting quality would be consistent with the economic bonding theory.

RESEARCH METHODOLOGY

We test our hypothesis that academic expertise (*AE*) is positively associated with the quality of firms' accounting quality using the following regression model:

$$DACC = \beta_0 + \beta_1 AE + \beta_2 FE + \beta_3 MVE + \beta_4 BM + \beta_5 GROWTH + \beta_6 LEV + \beta_7 LOSS + \beta_8 ISSUE + \beta_9 OCF + \beta_{10} LITIG + \beta_{11} BIG_N + Year\ Dummies + \varepsilon$$

The variables are defined as follows in Table 1.

Our variable of interest is academic expertise (*AE*) as defined above, which we measure as the number of academic directors on the firm's corporate board (*AE_{number}*) or as the percentage of academic directors over the total number of directors (*AE_{mean}*). We predict negative coefficients for the treatment variable because prior research suggests that expertise is associated with higher accounting quality. Since higher values of our dependent variable suggest more discretion, larger values are suggestive of earnings management and lower financial reporting quality.

Prior studies suggest myriad factors are associated with firms' accrual quality. For example, prior studies find a positive association between firm size and accrual quality (e.g. Pincus and Rajgopal, 2002; Dechow and Dichev, 2002; Barua, Davidson, Rama, and Thiruvadi, 2010). This finding is not surprising given the motivation of managers of large firms to provide high quality reporting. We, therefore, include the log of the market value of equity as a proxy for firm size (*MVE*) and predict a positive association between firm size and accrual quality.

Prior research (e.g., Klein, 2002; Menon and Williams, 2004) also suggests that accrual quality is positively (negatively) associated with firms' growth (book-to-market ratio). We include firms' sales growth calculated as the change in sales from year t-1 to year t (*GROWTH*) and firms' book-to-market ratio calculated as book value divided by market value (*BM*). Based on prior research we predict positive and negative associations between these variables and accrual quality, respectively.

TABLE 1
VARIABLE NAME AND DEFINITIONS

<i>DACC</i>	Accounting quality measured using discretionary accruals as implemented by Tucker and Zarowin (2006)
<i>AE_{number}</i>	Academic expertise measured as number of academics serving on the corporate board
<i>AE_{mean}</i>	Academic expertise measured as percentage of academics serving on the corporate board
<i>FE</i>	Financial expert measured as the number of financial experts on the board
<i>MVE</i>	Natural logarithm of the market value of equity measured as the shares outstanding multiplied by price at fiscal year end
<i>BM</i>	Ratio of book value to market value of equity
<i>GROWTH</i>	Change in change in revenue from year t - 1 to year t scaled by total assets
<i>LEV</i>	A firm's total assets less stockholders' equity of common shareholders divided by total assets
<i>LOSS</i>	Indicator variable equal to 1 if the firm reports a net loss, and zero if otherwise
<i>ISSUE</i>	Indicator variable equal to 1 if long-term debt or shares outstanding increased by 20 percent or more, and 0 if otherwise
<i>OCF</i>	Cash flows from operations scaled by total assets
<i>LITIG</i>	Indicator variable equal to 1 if the firm operates in a high-litigation industry and 0 if otherwise (SIC codes of 28, 35, 36, 52-59 and 73)
<i>BIG_N</i>	Indicator variable equal to 1 if the firm is audited by BIG-N auditor, and 0 if otherwise
<i>Year dummies</i>	Indicator variables equal to 1 for fiscal years 2008, 2009, and 2010 and 0 if otherwise
ε	An error term

Firm performance also appears to be a significant determinant of accrual quality. Specifically, studies examining accrual quality generally find that accrual quality is less for firms in distress and for firms with lower operating cash flows (Menon and Williams, 2004; Oursers, Oursers, and Omer, 2003; Nagy, 2005). We include a loss indicator variable (*LOSS*) as well as firms' cash flows from operations (*OCF*) as measures of firms' performance. We predict negative associations between these variables and accounting quality, such that firms reporting a loss and firms with lower operating cash flows are associated with lower accounting quality.

Studies also suggest that firms' governance and monitoring characteristics are determinants of firms' accounting quality. For example, Becker, Defond, Jiambalvo, and Subramanyam (1998) finds that firms audited by Big N auditors have higher quality financial reporting, and Bedard et al. (2004) find that aggressive earnings management is inversely associated with the governance expertise of the audit committee. We include a dichotomous variable equal to 1 if the firm is audited by a BIG-N audit firm, and zero if otherwise (*BIG_N*). We predict positive association between *BIG_N* and *GOV* and accounting quality.

We also control for firms that issue new debt or equity (*ISSUE*) and firms in high litigation industries (*LITIG*) based on Ashbaugh et al. (2003) who find these factors to be positively and negatively associated with discretionary accruals, respectively. Finally, we control for changes in

market conditions over our sample periods by including indicator variables for fiscal years 2008, 2009, and 2010. The effects of 2007 are incorporated into the intercept.

We measure firms' financial reporting quality (*DACC*) using a widely accepted accrual-based metric. Specifically, we use discretionary accruals which on a fundamental level use either cross-sectional or times-series data in an attempt to predict managers' opportunistic use of accounting choice to manage earnings. The use of accrual-based metrics as proxies for accounting quality is not without its critics. Despite these criticisms, the accrual-based metrics of accounting quality are widely used in the literature as a proxy for accounting quality (e.g., Bharath, Sunder, and Sunder, 2008; Houmes and Skantz, 2010; Kang, Liu, and Qi, 2010; Ramanna and Roychowdhury, 2010, etc.). In sensitivity tests, we also use accrual quality as measured by Dechow and Dichev (2002) as an alternative specification of accounting quality.

We measure discretionary accruals based on the Jones model (1991) as modified by Dechow, Sloan, and Sweeney (1995), and implemented by Tucker and Zarowin (2006). Overall, Jones 1991 models non-discretionary accruals on changes in a firm's economic circumstances under the assumption that revenues are non-discretionary. Dechow et al. (1995) consider a modified version of the Jones model, which eliminates a model specification issue when discretion is exercised over revenues. We differentiate the discretionary portion of total accruals by using the residual from the following model (Tucker and Zarowin, 2006):

$$TAcc_{i,t} = \delta_1 + \delta_2 GPPE_{i,t} + \delta_3 \Delta REV_{i,t} + \delta_4 ROA_{i,t} + \varepsilon_{i,t}$$

The variables in the above model are defined as follows:

<i>TAcc</i>	=	total accruals during year <i>t</i> ;
<i>GPPE</i>	=	gross property, plant, and equipment at the end of year <i>t</i> ;
<i>ΔREV</i>	=	change in revenue during year <i>t</i> ;
<i>ROA</i>	=	return on asset during year <i>t</i> ; and,
<i>ε</i>	=	an error term.

All of these variables, including the constant term, are scaled by total assets at the beginning of year *t*. The error term is ε . We estimate the model by year and by industry. The residuals from the regressions are used as a proxy for discretionary accruals.

SAMPLE AND DESCRIPTIVE STATISTICS

Our sample consists of all firms covered by RiskMetrics (formerly known as Investor Responsibility Research Center) from 2007 to 2010. The RiskMetrics universe covers approximately 1,500 firms per year and comprises approximately 90% of the value for the NYSE, AMEX, and NASDAQ markets (Dlugosz et al., 2006). We construct two measures of the independent variable of interest (Academic Expertise). AE_{number} and AE_{mean} are the number of academics on the Board of Directors in any given firm-year observation and the percentage of academics on the Board of Directors as compared to total board members, respectively.

To compute our measures of accounting quality, we gather annual financial data from Compustat North America and auditor information from Audit Analytics. Firm observations lacking the necessary data are removed from the sample. We exclude firms in the financial services (SIC #6000-6999) and utilities (SIC #4900-#4999) since firms in these industries are subject to regulatory and compliance factors that affect the nature of the firms' information environment.

The following table summarizes the sample selection process:

**TABLE 2
SAMPLE SELECTION**

	Total
RiskMetrics Firms (2007 - 2010)	8,309
Financial Service Firms and Utilities <i>Less firms observations missing:</i>	
Financial data	(3,611)
Auditor information	(87)
Final sample	4,611

Our final sample consists of 4,611 firm-year observations over four fiscal years with firm-year observations fairly evenly disbursed across the sample years. Table 3 provides the descriptive statistics.

**TABLE 3
DESCRIPTIVE STATISTICS**

Variables (N=4,611)	Mean	Standard Deviation	25th Percentile	Median	75th Percentile
<i>Dependent variable</i>					
DACC	0.0340	0.0730	-0.0284	0.0033	0.0744
<i>Treatment variables</i>					
AE _{number}	0.4835	0.7357	0.0000	0.0000	1.0000
AE _{mean}	0.0503	0.0763	0.0000	0.0000	0.1000
<i>Control variables</i>					
FE	1.5689	1.3286	1.0000	1.0000	2.0000
ASSETS	7.9171	1.6606	6.7021	7.7718	8.9661
MB	2.4726	21.434	1.2877	1.9010	3.0452
GROWTH	0.0590	0.2834	-0.0518	0.0468	0.1424
LEV	0.5853	0.2988	0.3926	0.5657	0.7408
LOSS	0.1554	0.3624	0.0000	0.0000	0.0000
ISSUE	0.2523	0.4344	0.0000	0.0000	1.0000
OCF	0.1151	0.0903	0.0598	0.1050	0.1625
BIG_N	0.9348	0.2469	1.0000	1.0000	1.0000
LITIG	0.3815	0.4858	0.0000	0.0000	1.0000

The descriptive statistics for the full sample reveal that approximately 48% of firms in our sample have one or more academic director (AE_{number}). As a percentage of total directors, academics make up approximately 5% of all directors (AE_{mean}). The mean (median) of our accounting quality dependent variables ($DACC$) at 0.034 (0.003) are generally consistent with prior research. For example, Tucker and Zarowin (2006) find in their sample of 17,019 observations mean (median) discretionary accruals of 0.047 (0.023). Similarly, Balsam, Krishnan, and Yang (2003) find discretionary accruals with means (medians) of 0.09 (0.05), respectively in their sample of

50,116 firm-year observations. The mean of the discretionary accruals in our sample is somewhat lower at 0.03, but generally consistent with prior research.

The descriptive statistics on our control variables reveal that firms in our sample are highly levered, having approximately 58% debt-to-equity ratios. Most of the sample firms (93%) are audited by a Big-N auditor and about 25% have issued debt or equity. The firms are generally profitable, with only about 16% recording a net loss in a given firm-year observation.

MULTIVARIATE RESULTS

Our primary analyses focus on the effects of academic expertise (*AE*) on firms' accounting. Table 4 presents the estimation of our model using discretionary accruals as implemented by Tucker and Zarowin (2006). The models estimated and reported in columns 1 and 2 vary based on the *AE* variable. Column (1) present the results for academic expertise measured as the number of academics on the Board of Directors, while column (2) presents the results when academic expertise is measured as the percentage of academics on the board.

TABLE 4
MULTIVARIATE REGRESSION RESULTS

Variable	Predicted		(1)		(2)	
	Sign	Coefficient	t-stat	Coefficient	t-stat	
Intercept	?	0.011	1.51	0.011	1.51	
<i>AE_{number}</i>	-	-0.003	-2.28 **			
<i>AE_{mean}</i>	-			-0.003	-1.97 **	
FE	-	0.001	0.39	0.017	1.83 *	
MVE	+	0.001	1.77 *	0.001	1.63 *	
BM	-	-0.001	-4.44 ***	-0.001	-4.45 ***	
GROWTH	+	0.016	4.08 ***	0.016	4.09 ***	
LEV	-	-0.011	-2.78 ***	-0.011	-2.78 ***	
LOSS	-	-0.018	-5.74 ***	-0.018	-5.79 ***	
ISSUE	+	0.010	3.83 ***	0.010	3.85 ***	
OCF	-	-0.172	-13.37 ***	-0.172	-13.36 ***	
LITIG	+	0.002	0.93	0.002	0.84	
BIG_N	-	-0.001	-0.27	-0.002	-0.37	
<i>Year dummies</i>		<i>Included</i>		<i>Included</i>		
Adjusted <i>R</i> ²		5%		5%		
N		4,611		4,611		

* / ** / *** are significant at the 0.10 / 0.05 / 0.01 levels, respectively. The dependent variable is accounting quality as measured by discretionary accruals (**DACC**) and the independent variables are defined in Table 3.

The results of the estimation are consistent with prior studies (Ashbaugh et al. 2003; Balsam et al. 2003; Richardson 2000) and the control variables are generally statistically significant at the *p*<.05 level or better. For example, MVE, BM, GROWTH, LEV, LOSS, and ISSUE are all significant at *p*<.01 and have signs consistent with the literature noted above. BIG_N is not significant in either regression. This result is likely due to the lack of variability in this measure since approximately 93% of sample firms had a Big-N auditor.

Column 1 provides the regression results using the number of academic directors on the Board of Directors as the treatment variable (AE_{number}). The coefficient is negative and significant at $p < .05$, which is consistent with the reputation capital theory and not the economic bonding theory. Column 2 provides the regression results when AE is measured as the percentage of academics serving on the Board of Directors. Similar to the results reported for Column 1, the coefficient on AE_{mean} is negative and significant at $p < .05$. This result is also consistent with reputation capital concerns outweighing the economic bond created by the fact that managers are generally responsible for the nomination and reappointment of directors.

SENSITIVITY ANALYSES

We conduct a number of untabulated tests to ensure the consistency of our findings and model specification. First we test if legal expertise on corporate boards affect our results and find that our results remain after controlling for the legal expertise. We also test for self selection bias using a two-stage approach and find that the results are consistent with the reported results. To test the reliability of our dependent measure, we use an alternative specification of accounting quality following Dechow and Dichev (2002) based on past, current, and future cash flows. The results are consistent using this alternative measure of accounting quality. Finally, we use the popular “Fama-MacBeth” approach, which consists of running year-by-year regressions and then testing the significance of the regression coefficients using Newey-West standard errors. The untabulated results using this method are consistent with the results previously report.

SUMMARY AND CONCLUSION

Our study contributes to the growing stream of literature examining corporate board composition and financial reporting quality. We find that firms with academic board members are associated with higher financial reporting quality. This finding is relevant given the increased attention that regulators and other market participants have placed on the role of corporate boards in firm governance. The results may be of particular interest to regulators, capital market participants, and academics. Regulators may be interested because the findings have policy implications when considering financial reporting quality and corporate governance characteristics. Investors and creditors may find the results useful in evaluating investment decisions. Finally, academics looking to broaden their experiences by serving on corporate boards may find the information useful in making decisions on whether to serve on audit committees.

Readers should bear in mind that the inferences we draw are based on association tests, therefore, causal relationships should not be inferred from our findings. The validity of our findings is also conditional on the construct validity of the framework that we have proposed. Further, although we perform tests for endogeneity as discussed above, we cannot rule out the possibility that academics self-select into firms with higher accounting quality. Finally, the method we use to identify academics serving on corporate boards is through public disclosure by the firms in our sample. In as much as directors are required to identify their primary employer, we acknowledge that some academic board members may not report themselves as academics. The effects, if any, on our results due to these unidentified academic board members are unknown.

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