

MBA CEOs, Short-Term Management and Performance

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Abstract There is ample discussion of MBA self-serving values in the corporate social responsibility literature, and yet empirical studies regarding the corporate manifestations and consequences of those values are scant. In a comprehensive study of major US public corporations, we find that MBA CEOs are more apt than their non-MBA counterparts to engage in short-term strategic expedients such as positive earnings management and suppression of R&D, which in turn are followed by compromised firm market valuations.

Keywords MBA CEOs · Firm performance · Self-serving behavior · Short-term management · Strategy

Introduction

A good deal has been written about the supposed self-serving nature of MBAs and its manifestation in practices that ultimately erode shareholder value or stakeholder well-being (e.g., Christensen et al. 2007; Ferraro et al. 2005; Ghoshal 2005; Mintzberg 2004). However, a significant literature runs counter to this view, suggesting superior MBA performance (e.g., Bertrand and Schoar 2003; Hansen et al. 2010, 2013). Unfortunately, despite the ethical

and practical importance of this question (Mintzberg 2004; Neubaum et al. 2009), there is little empirical evidence to resolve these conflicting positions. Most studies examine business school student attitudes rather than executive behavior (Christensen et al. 2007). Moreover, the handful of exceptions has neglected to examine the corporate conduct that is evidence of harmful short-term management practices or has concentrated on rather selective samples of CEOs. We have addressed this important debate by examining executive strategic behavior that others have argued and shown to be indicators of short-term, self-serving motives that can improve a CEO's private benefits but ultimately harm a firm's market valuation—namely earnings management through manipulating discretionary accruals and minimizing research and development investments.

Unlike financial returns, market valuations reflect investors' best estimates of the overall health and managerial resources of a company and its future prospects (Shleifer and Vishny 1997). Because a company serves a collection of stakeholders—not only shareholders, but employees, the community, suppliers, and customers—declines in market valuation are consequential to them. These declines are ethically significant when caused by purposeful behavior that benefits a private individual. Where managerial expedients such as earnings management boost immediate profits but harm subsequent market valuations and thus firm resources and prospects, and if those expedients can be tied to a particular type of actor—in our case MBA CEOs—that is important to know as it threatens the welfare of all actors.

In this study, we employ data from a comprehensive sample of US publicly listed firms to discover that among them, those whose CEOs possessed MBA degrees were more likely to engage in self-serving behavior as

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manifested by short-term practices, specifically, positive earnings management and minimizing R&D expenses, and that such practices in turn were associated with subsequent deterioration in the market valuation of the companies. We also confirmed in follow-up analysis that short-term practices were succeeded by superior increases in the compensation of the CEOs who pursued them.

Our presentation is structured as follows. We first discuss some of the literature on the sources of self-serving values and practices as related to MBA educational experiences and then develop hypotheses on the strategic indicators and consequences of those kinds of values. Then, we present our methods and findings before discussing the implications of our analysis.¹

MBA Education and Self-Serving Attitudes

Ghoshal (2005) has argued that business education has been shaped by assumptions about human nature derived in large part from a deterministic economic perspective. It stipulates that human beings will not only pursue self-interest, but self-interest with guile, often of an economic nature (Donaldson 1990; Williamson 1975). That is, people will behave in an opportunistic way and cannot be trusted. Motives such as altruism, social contribution, self-actualization and stewardship are cast aside as being unusual, unreliable, and less relevant (Ghoshal and Moran 1996).

These “gloomy” assumptions about human nature (Hirschman and Exit 1970) are incorporated in the theories dominating today’s business schools: agency theory (Alchian and Demsetz 1972; Fama and Jensen 1983), transaction cost economics (Williamson 1975), game theory (Milgrom and Roberts 1982), network analysis (Burt 2000), and even human capital theory (Becker 2009). These theories are not merely descriptive—they are used as a basis for drawing normative prescriptions for management practice (Ghoshal 2005; Pfeffer 2005; Ferraro et al. 2005, 2009). Such practices include the prioritization of shareholders as the primary party to be served by management (Friedman 1970), specifically via share value maximization (Aglietta and Reberieux 2005; Froud et al. 2006; Kochan 2002; Lazonick and O’Sullivan 2000). They advocate that employees and managers are to be controlled by hierarchy and fiat, by close monitoring, and by financial incentives (Fama and Jensen 1983). The theories are used to prescribe models of corporate governance, financial and accounting strategies (Jensen and Meckling 1976), bargaining orientations (Kochan 2002),

strategic alliances and joint ventures (Williamson 1975), and human resources practices, including those of compensation and oversight of all levels of management (Becker 2009; Pfeffer 2005). It would be difficult for the graduates of MBA programs to avoid being influenced in their behavior by these practices (Ferraro et al. 2005, 2009; Ghoshal 2005).

Moreover, the pessimistic human nature assumptions of opportunism behind the practices and the practices themselves are not benign. Rather they are self-reinforcing (Enzle and Anderson 1993). Thus, for example, Stevens and Thevaranjan (2010) have argued that agency theory is self-activating—that its focus on financial incentives to avoid shirking and opportunism directs managers’ attention and motivations toward these behaviors. There is, in effect, a pernicious vicious circle in which negative assumptions about human behavior and the implementation of practices based on those assumptions become self-fulfilling prophecies (Arce 2007; Froud et al. 2006; Osterloh and Frey 2003). Thus, according to Enzle and Anderson (1993: 265), “Surveillants come to distrust their targets as a result of their own surveillance and targets in fact become unmotivated and untrustworthy. The target is now demonstrably untrustworthy and requires more intensive surveillance, and the increased surveillance further damages the target. Trust and trustworthiness both deteriorate”.

According to Ghoshal (2005: 85), “Combine agency theory with transaction costs economics, add in standard versions of game theory and negotiation analysis, and the picture of the manager that emerges is one that is now very familiar in practice: the ruthlessly hard-driving, strictly top-down, command-and-control focused, shareholder-value-obsessed, win-at-any-cost business leader”. Aglietta and Reberieux (2005), Froud et al. (2006), Kochan (2002), and Lazonick and O’Sullivan (2000) have confirmed the resultant outcomes such as excessive managerial compensation, short-term financial targets and earnings manipulation, and downsizing, as well as social costs in the form of unemployment, the decline of unions, and the increase in income inequality.

Thus, it would not be surprising if students of business school come to believe negative assumptions about human nature and adopt the concomitant practices when they become managers. Management education, in disseminating a particular worldview, may have made its assumptions and practices, as well as their negative side-effects, a business reality, perhaps especially for the students most exposed to those theories in business school and who have the best chance of implementing them in the firms when they become CEOs. Aspects of that contention is what we have attempted to examine in our research.

Course Case Examples When business students take on roles in addressing a case, they often assume the mantle of the top executive driving for better returns rather than someone working for the interests of other stakeholders

¹ We are not implying that MBA education *leads to* short-term practices that are destructive of firm value. It may be that individuals who favor such practices chose MBA business educations versus programs in the arts or sciences, the latter of which may find favor with those planning careers that are more socially or technically oriented.

such as employees, suppliers, or customers, many of whom are apt to be as or more dependent on the conduct of the firm (Christensen et al. 2007; Mitroff 2004; Bennis and O'Toole 2005; Freeman 2010). Of course, some MBA courses teach corporate social responsibility, stakeholder theory, and social entrepreneurship (Evans and Robertson 2003). But, these generally represent a small slice of the academic curriculum [an average of 0.7 courses per program according to the meta-analysis by Wu et al. (2010)].

Early Evidence of Firm and Societal Damage

A number of important works have criticized the outcomes associated with these dominant management theories and the increased “financialization” of management. Aglietta and Reberieux (2005) have argued that this emphasis on financial market valuations ultimately erodes firm democracy and enables opportunistic CEOs to game the system more than if other stakeholders and stakeholder objectives were important. Indeed, Lazonick and O'Sullivan (2000) demonstrated an association between the emphasis on firm value and firm downsizing. Froud et al. (2006) agree, and using case examples of GE, Glaxo and Ford, argue that whereas top managers were able to enrich themselves during the 1990s, ultimately they *destroyed* firm market valuations. One way they did this was via the pursuit of quick private benefits for themselves by engaging in practices that artificially inflate financial returns—typically at the longer-term cost of deteriorating valuations. As noted above, this emphasis on financial returns is mirrored in the attitudes and teachings of many MBA programs (Arce 2007; Stevens and Thevaranjan 2010).

Early Evidence of MBA Self-Serving Conduct

Certainly, ample research exists on the personal qualities of MBA students and recent graduates with an economics concentration (see the review by Loe et al. 2000). For example, these individuals have been shown to be more likely to exhibit selfish behavior (Carter and Irons 1991; Neubaum et al. 2009), corruption and opportunism (Frank and Schulze 2000), and a tendency toward free riding (Marwell and Ames 1981). As for the skill levels of MBAs versus others, Leonhardt (2000) found no difference in career achievement, whereas Connolly (2003) found that the *personal* rewards from the degree were superior.

The broad-based empirical research on the actual managerial practices of MBAs fails to consider strategic orientations that are unambiguous manifestations of self-serving conduct. For example, Grimm and Smith (1991) found that MBAs were more apt to adapt their strategies, while Geletkanycz and Black (2001) found no relation between MBA CEOs and commitment to the status quo (see also Finkelstein

et al. 2009). Bertrand and Schoar (2003) discovered that MBAs were more apt to take on debt, pay less dividends, and expend more capital than non-MBAs. None of these outcomes helps us to discern whether MBA behavior is, or is not, self-serving.

There were indirect hints of short-term behavior by Palmer et al. (1993) and Useem and Karabel (1986) who noted that MBAs from prestige schools tended to build on their social networks to engage in acquisitions; see also Miller and Xu (2016) and Espeland and Hirsch (1990). However, engaging in acquisition strategies does not necessarily reflect self-serving motives.

These ambiguities were compounded by studies of MBA CEO performance which are enormously contradictory, perhaps because of the very different samples and variables assessed and the differing levels of methodological rigor. For example, Bhagat et al. (2010) found that MBA CEOs outperformed during a turnaround situation but had no positive effect on long-term performance. Hambrick et al. (1992) suggested that MBAs might outperform, but their small, specialized study was limited to high tech firms. Hansen et al. (2010, 2013) in their more heterogeneous sample found better results for MBA-run firms, but did not specify their control variables. Bertrand and Schoar (2003) found that MBAs outperformed according to accounting measures, but in their limited sample only controlled for log of assets and reported no market measures of performance. Miller and Xu (2016) found that MBA CEOs who had been celebrated as excellent managers on the cover of three major US business magazines were less able than others to maintain firm market valuations after the cover story appeared. However, this was a rarified sample of outperformers.

In short, there is little evidence either way to establish whether MBA CEOs are more self-serving than other managers or to establish its performance consequences. As noted, we believe that an important indicator of self-serving behavior is that which aims toward certain, short-term results that in the very near course can benefit a CEO but in the longer run will harm a company. We shall argue that these criteria are fulfilled especially well by two forms of strategic conduct: the positive manipulation of earnings, and the limiting of discretionary long-term expenditures on R&D. These tactics have been shown to be associated with private benefits for a CEO and eventually to erode the market valuations of a company.

Self-Serving Behavior, Short-Term Strategic Conduct, and Firm Performance

Self-serving executives may be especially likely to use short-term tactics that guarantee increased earnings and therefore enhance private benefits such as job security and

mobility, reputation, and compensation (e.g., Bebchuck and Grinstein 2005; Bell and Van Reenen 2012; Efendi et al. 2007), but at an ultimate cost to the robustness of their firms and hence all of their stakeholders (e.g., Aglietta and Reberioux 2005; Froud et al. 2006; Jensen 2005; Picconi 2006). As suggested, two primary ways of doing this are positive earnings management and minimizing investments that take a long time to pay off, specifically, research and development expenses. Earnings management has been documented to be a sure and facile way for managers to meet short-term objectives. For example, executives may manage accruals to avoid reporting negative earnings and sustaining earnings growth (Burgstahler and Dichev 1997), or even to exceed consensus analysts' expectations (DeGeorge et al. 1999). Minimizing R&D expenditures, another form of earnings management since these expenditures are discretionary, also was argued to be a certain vehicle for achieving financial targets (Dechow and Sloan 1991; Bushee 1998). Meeting these hurdles can favorably influence board retention (and hiring) decisions and compensation benefits pertaining to a CEO (Cornett et al. 2008; Efendi et al. 2007, and others).

Both accruals earnings management and R&D minimization are not without cost to a firm. The former, if detected, can occasion eventual earnings restatements, erosion of investor confidence, and even lawsuits, all of which may erode firm market valuations (e.g., Dechow et al. 1996; Jensen 2005; Picconi 2006). Suboptimal R&D expenditure, although more difficult to detect than accrual management, is probably still more detrimental because of its effects on firm competitiveness and future growth (e.g., Chan et al. 2001; Wakelin 2001).

Earnings Management

Earnings management (EM) is a short-term expedient that can provide benefits to opportunistic CEOs with relatively little risk. Indeed, there is a growing body of research on the ethics of positive earnings management—essentially, discretionary management of expenses and revenues to boost profits (Fischer and Rosenzweig 1995; Healy and Wahlen 1999). The practice has been criticized by authorities such as former SEC Chairman Arthur Levitt as sometimes bordering on fraud as managers try to hide the true situation of the company from shareholders and make a business seem to be more profitable than it actually is (Bergstresser and Philippon 2006; Elias 2002). Much of the associated literature examines the relationship between ethical beliefs and opinions about earnings management, and the effect of regulations and board practices on the management of earnings (Bédard et al. 2004; Kaplan 2001).

Research on earnings management also reveals its negative impact on longer-term financial performance and valuations (Jensen 2005; Rangan 1998), but a positive relationship with CEO rewards (Bergstresser and Philippon 2006; Cheng and Warfield 2005). Indeed, there is a growing literature to indicate that executives have a considerable incentive to exaggerate their firms' performance in order to procure private benefits such as gains through compensation (Safdar 2003; Burns and Kedia 2006; Bergstresser and Philippon 2006; Efendi et al. 2007; Cornett et al. 2008). EM was also shown to correlate with enhanced levels of insider stock sales (Beneish and Vargus 2002; Bergstresser and Philippon 2006). Defond and Jambalvo (1994) and Sweeney (1994) have argued that CEOs are driven to manage earnings to achieve greater control and discretion over their companies. Earnings management also was correlated with the degree of security managers felt about their careers and job opportunities (Defond and Park 1997; Ahmed et al. 2006; and Mergenthaler et al. 2009).

Given the arguments of those who believe that MBAs are prone to pursuing self-serving rewards and that earnings management may well be a vehicle for attaining such benefits, we expect that there will be a positive association between the practice of earnings management and the possession of an MBA degree by a firm's CEO. As noted, positive earnings management is a sure way of increasing reported earnings, and it can be done quickly. Moreover, a CEO has a good deal of discretion in shaping these self-serving reporting practices (Healy and Wahlen 1999; Bédard et al. 2004). Hence, we expect that MBA CEOs will be more apt than their counterparts to employ positive earnings management practices.

H1: MBA CEOs are more likely than non-MBA CEOs to engage in positive earnings management.

Research and Development Expenses

Bertrand and Schoar (2003) suggested but could not confirm a negative association between MBA CEOs and R&D expenditures, likely due to limitations in sample size, while Barker and Mueller (2002) found no relationship between the number of business degrees held by top managers and R&D expenditures, again in a restrictive sample. Empirically, the issue remains unresolved.

As with other forms of earnings management, restricting R&D expenditures can augment current earnings, with collateral private benefits for CEOs. Although R&D expenditures have been shown to produce longer-term benefits (Chan et al. 2001), these constitute expenses that reduce immediate profitability, and their minimization or reduction, of course, can increase it. Just as positive

earnings management can result in quick boosts to profitability, so can the tight control over R&D expenses (Bublitz and Ettredge 1989; Chan et al. 1990). Short-term oriented executives may decide simply to exploit the investment in R&D from years gone by and save money by failing to renew the knowledge capital of the firm—the ultimate costs of which may take some time to manifest. R&D, in other words, is a long-term investment, and therefore, executives bent on showing rapid increases in profits may decide to minimize it, hoping to show positive results in the near term that solidify their status.

H2: MBA CEOs are more likely than non-MBA CEOs to spend inferior amounts on R&D.

Earnings Management, R&D, and Firm Market Valuation

The benefits of earnings management can last only so long. Ultimately, a price will be paid in deteriorating firm value as the true, underlying financial condition of the firm becomes known (Rangan 1998; Teoh et al. 1998). As noted, earnings management behaviors have in fact been linked to subsequent declines in firm valuations (e.g., Jensen 2005; Picconi 2006). However, to date, these behaviors have not been associated with the possession of MBA training. Given the earlier research on their values and attitudes, we believe that MBA executives are especially likely to distort their firms' reporting of financial returns to obtain private benefits, and as a consequence erode the performance of their companies.

Similarly, the inadequate funding of innovation and new product development may come to be reflected in subsequent reduced market valuations of the company as investors become more pessimistic regarding the knowledge capital, growth, and renewal potential of the firm (Chan et al. 1990, 2001). In summary, short-term expedients to achieve performance may be costly to subsequent firm valuations.

H3: MBA CEO's positive earnings management and inferior R&D expenditures will be associated with decreases in firm market valuations.

Methods

Sample

As noted, we selected a large sample of US CEOs because we wanted to examine the impact of having an MBA degree on a less restrictive group of CEOs than did the previous literature. Our sample was obtained from the BoardEx database, which provides educational information for most executives of major US firms. From that database, we identified the CEO

for each firm-year and whether he or she had an MBA degree. We excluded years prior to 2003 as BoardEx's coverage was significantly curtailed in earlier years. We also excluded firms missing any information required by our analysis. The sample we obtained includes 5004 CEOs; or 19,068 CEO-year observations from 2003 to 2013.

Variables

To assess the relationships between having an MBA degree, short-term management behaviors, and their consequences, we utilized variables that measure upward earnings management, R&D, and firm performance.

Independent Variable

Our primary independent variable is a binary dummy that equals to one if the CEO has an MBA degree. This information was obtained from the BoardEx database. Approximately 37% of the CEOs in our sample had an MBA degree.

Short-Term Management Variables

To test the first hypothesis that MBA CEOs engage in more upward earnings management (EM) than their counterparts, we measured EM using the discretionary accruals measure estimated through the modified Jones model (Dechow et al. 1995). The model assesses the discretionary accrual amount—that is, accruals that are subject to management choices and cannot be explained by business conditions such as sales and property, plant, and equipment expenditures. This measure captures the subtle income management techniques used by executives. It is more inclusive than other accrual measures and reflects the choice of accounting methods, the effect of recognition timing for revenues and expenses, and changes in accounting estimates. It is also applicable across the broad range of firms in our sample and subject to assessment using the data available to us (Dechow et al. 2010).

The modified Jones model is estimated as follows. For each two-digit SIC year grouping,² we ran the following regression:

$$\frac{TA_{it}}{Assets_{i,t-1}} = k_{1t} \frac{1}{Assets_{i,t-1}} + k_2 \frac{\Delta REV_{it}}{Assets_{i,t-1}} + k_3 \frac{PPE_{it}}{Assets_{i,t-1}} + \varepsilon_{it}, \quad (1)$$

and captured the regression coefficients. TA represents total accruals calculated as the difference between earnings

² To enhance the validity of our estimates, we drop SIC years with less than 10 observations.

before extraordinary items and operating cash flows and is scaled by total assets at the previous fiscal year end. ΔREV captures the change in firms' sales from year $t - 1$ to year t . PPE represents the gross value of property, plant, and equipment.

The coefficients from Eq. (1) were then applied to the following equation to obtain estimates of firm-year-specific non-discretionary accruals (NA):

$$\text{NA}_{it} = \hat{k}_{it} \frac{1}{\text{Assets}_{i,t-1}} + \hat{k}_2 \frac{\Delta\text{REV}_{it} - \Delta\text{AR}_{it}}{\text{Assets}_{i,t-1}} + \hat{k}_3 \frac{\text{PPE}_{it}}{\text{Assets}_{i,t-1}}; \quad (2)$$

where ΔAR is the change in accounts receivable from the previous year.

The discretionary accruals are then calculated as the difference between total accruals and non-discretionary accruals, which is $(\text{TA}_{it}/\text{Assets}_{i,t-1}) - \text{NA}_{it}$. All our firm level financial variables were obtained from Compustat, unless otherwise indicated.

To test the second hypothesis on the relationship between MBA and R&D, we measured research and development using the R&D expenditure amount reported in Compustat, scaled by the total assets of the firm. Following common practice (e.g., Bizjak et al. 1993), we replaced the firms with blank R&D expenditures with zero when conducting our calculation as firms are not required to report R&D expenditures when they represent very small fractions of assets.

Dependent Variable

We chose Tobin's q as our measure to test the impact of a CEO's MBA degree on firm performance through short-term management practices. Tobin's q captures investors' collective evaluation of the prospects of a firm and the soundness of its management (Shleifer and Vishny 1997), and it is preferred over standard return on investment measures because equity market valuation changes are rapid, forward looking, and less subject to manipulation by managers. Tobin's q is calculated as (total assets – book value of equity + market value of equity)/total assets, where market value of equity is the year end stock price times the number of common shares outstanding. We capture firm performance changes using the annual change in Tobin's q , calculated as Tobin's $q_t - \text{Tobin's } q_{t-1}$. Assessing relative changes in performance, rather than the level of performance, reduces the likelihood that poor performance leads to short-term management behaviors. Also, we allowed for temporal effects by using past year's short-term management practices to predict future changes in Tobin's q , thereby further reducing concerns of endogeneity.

Control Variables

Our analyses incorporated both personal level and firm level control variables. Personal level variables include age, tenure, and gender, all obtained from the Boardex database. CEO age (Yim 2013) and tenure (Hambrick and Fukutomi 1991) have been shown to shape strategic priorities and also to influence firm performance (Miller and Shamsie 2001). CEO tenure is calculated as $\log(1 + \text{year in role})$. We also controlled for CEO gender because women CEOs are perceived to be more risk averse (Khan and Vieito 2013) and to have superior capability (Martelli and Abels 2010).

Firm level controls include both financial information and governance quality. All financial data are from the Compustat database. We controlled for firm size by using \log of total assets; capital structure by using the leverage measure—total long-term and short-term debt divided by total assets; growth opportunities by using book to market ratio—book value of equity/market value of equity; and past performance by using revenue growth. All are standard measures shown to influence earnings management, R&D, and firm performance (e.g., Bergstresser and Philippon 2006; Bhagat and Bolton 2008).

A CEO's short-term management behavior might be limited by better governance. A board's monitoring ability is greater when it has a higher percentage of independent directors (e.g., Weisbach 1988). We use the percentage of independent directors as a board quality measure, and also control for the size of the board. Another governance measure is CEO duality. Allowing a CEO to serve also as board chair has been shown to reduce performance vis-à-vis firms with a more independent board leadership (e.g., Rechner and Dalton 1991); hence, we include CEO duality as a dummy that equals 1 if the CEO is also board chair. By controlling for governance quality, we reduce the possibility that poor governance accounts for CEOs' short-term practices.

In addition, we controlled for the university from which the CEO's MBA degree was obtained because education quality has been shown to impact firm performance (Miller et al. 2015). The top schools dummy equals to one if the MBA degree was obtained from one of the top 20 programs classified by *US News and World Report*³ such as Harvard, MIT, Chicago, Stanford, Columbia, U Penn, and Cornell.

Analyses

Table 1 reports the summary statistics and correlation matrix for the variables. The multivariate regression results for the relationship between MBA and short-term

³ Results stayed the same if we include the top 10 programs only.

Table 1 Summary statistics and correlation matrix

	Variables	N	Mean	p50	SD	[1]	[2]	[3]	[4]	[5]
[1]	EarnMgt	19,068	-0.009	-0.004	0.138					
[2]	R&D	19,068	0.072	0.017	0.128	-0.19				
[3]	MBA	19,068	0.374	0.000	0.484	0.02	-0.05			
[4]	Q	19,068	2.175	1.643	1.045	-0.09	0.33	-0.02		
[5]	Change Q	19,068	-0.022	0.022	1.623	-0.01	0.05	0.00	-0.38	
[6]	Comp growth	8261	0.045	0.058	0.603	0.04	-0.03	0.00	0.00	0.10
[7]	Top Univ	19,068	0.297	0.000	0.457	-0.01	0.03	0.24	0.02	0.01
[8]	Board # (log)	19,068	2.180	2.197	0.230	0.02	-0.17	0.06	-0.10	0.01
[9]	% IndDir	19,068	0.752	0.778	0.129	-0.02	0.04	0.08	-0.04	0.01
[10]	Duality	19,068	0.478	0.000	0.500	0.04	-0.12	-0.03	-0.02	0.00
[11]	Female	19,068	0.030	0.000	0.169	-0.01	0.02	-0.02	0.02	0.00
[12]	Age	19,068	54.7	55	7.9	0.08	-0.09	-0.02	-0.10	0.01
[13]	Tenure	19,068	1.512	1.504	0.794	0.06	0.00	-0.05	0.00	0.03
[14]	Assets	19,068	1864	416	3677	0.03	-0.18	0.04	-0.11	0.01
[15]	Leverage	19,068	0.181	0.129	0.198	0.00	-0.16	0.02	-0.14	0.05
[16]	Bk/Mkt	19,068	0.526	0.428	0.475	-0.01	-0.17	0.00	-0.52	0.16
[17]	Rev Growth	19,068	0.106	0.085	0.343	-0.02	0.02	-0.02	0.21	-0.13

	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
[1]											
[2]											
[3]											
[4]											
[5]											
[6]											
[7]	0.00										
[8]	0.01	0.01									
[9]	0.02	0.01	0.20								
[10]	0.01	0.07	0.00	0.06							
[11]	0.00	-0.02	0.00	-0.01	-0.05						
[12]	0.00	-0.01	0.03	-0.02	0.27	-0.05					
[13]	0.03	0.06	-0.09	0.00	0.21	-0.03	0.26				
[14]	-0.01	0.01	0.45	0.18	0.12	-0.02	0.07	-0.02			
[15]	0.00	-0.02	0.20	-0.01	0.06	-0.03	0.06	-0.03	0.17		
[16]	-0.01	-0.02	-0.1	-0.1	-0	0.01	0.07	0	-0	-0.12	
[17]	-0.04	0.01	-0	-0	0.01	-0	-0.1	-0	-0	-0	-0.2

management behaviors are presented in Table 2 Panel A. Table 2 Panel B shows the effect of short-term management on changes in firm performance. In all regressions, we control for top school, CEO age, tenure, gender, board size, percentage of independent directors, CEO duality, firm size, leverage, book to market, and revenue growth, as well as year and industry. When change in Tobin's q is taken as the dependent variable, we incorporate an additional control for lagged value of Tobin's q to control for mean reversion (De Bondt and Thaler 1985). Year and industry fixed effects are included, and clustering was

performed at the firm level to account for within firm covariances (Peterson 2009).

In Table 2 Panel C, we examine the combined effect of Panel A and Panel B—that is, whether a CEO's having an MBA is associated with short-term management—which in turn results in declining firm performance (and hence, the “indirect effect” of a CEO having an MBA on the change in q). This is achieved by employing multiple mediation analysis in which we treat earnings management and R&D expenditures as mediators (e.g., Kenny et al. 1998; Zhao et al. 2010). We report the significance of the “indirect

Table 2 MBA, short-term management and performance

Variables	EM		R&D		
Panel A: MBA, earnings management (EM) and R&D					
MBA	0.008***	(2.70)	-0.014***	(-4.10)	
Top schools	-0.008**	(-2.56)	0.012***	(3.48)	
Board size (log)	-0.005	(-0.63)	0.013	(1.60)	
% Independent directors	-0.037***	(-3.28)	0.071***	(6.10)	
CEO duality	0.004	(1.44)	-0.015***	(-4.63)	
Female	0.000	(0.04)	0.008	(0.70)	
Age	0.049***	(4.65)	-0.031***	(-2.59)	
Tenure	0.009***	(5.49)	0.001	(0.37)	
Assets (log) $t - 1$	0.005***	(3.46)	-0.020***	(-15.56)	
Leverage $t - 1$	-0.017*	(-1.93)	-0.035***	(-3.81)	
Book to market $t - 1$	-0.004	(-1.42)	-0.038***	(-13.59)	
Revenue growth $t - 1$	-0.006	(-1.17)	-0.012***	(-3.35)	
Constant	-0.195***	(-4.10)	0.241***	(4.29)	
Year and industry dummies	Yes		Yes		
Observations	19,068		19,068		
Adjusted R^2	0.028		0.389		
Variables	Change in Q				
Panel B: MBA, earnings management, R&D and change in Q					
MBA				-0.009	(-0.60)
EM $t - 1$				-0.275***	(-3.33)
R&D $t - 1$				0.959***	(8.56)
Top schools				0.015	(0.96)
Board size (log)				0.009	(0.22)
% Independent directors				0.027	(0.52)
CEO Duality				0.014	(0.95)
Female				-0.006	(-0.14)
Age				-0.185***	(-3.23)
Tenure				0.032***	(3.85)
Assets (log) $t - 1$				-0.026***	(-4.66)
Leverage $t - 1$				0.008	(0.18)
Book to market $t - 1$				-0.216***	(-10.81)
Revenue growth $t - 1$				-0.070**	(-2.00)
$Q t - 1$				-0.313***	(-23.36)
Constant				2.034***	(7.69)
Year and industry dummies				Yes	
Observations				19,068	
Adjusted R^2				0.258	
	Coef.	SE	z	$P > z$	Total effect mediated (%)
Panel C: Indirect effects of MBA CEOs on changes in Q through EM and R&D					
Indirect from EM	-0.002**	0.001	(-2.09)	0.037	9
Indirect from R&D	-0.013***	0.003	(-3.76)	0.000	55
Combined total indirect	-0.015***	0.004	(-4.18)	0.000	64

Multiple regression results of the impact of a CEO having an MBA degree on earnings management (EM) and R&D expenditures (Panel A); and of earnings management and R&D on changes in Q (Panel B). Year and industry dummies are included, and the regressions are clustered at firm level. Panel C reports the indirect effect of an MBA CEO on changes in Q through earnings management and R&D expenditure. t statistics are in parentheses

Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level

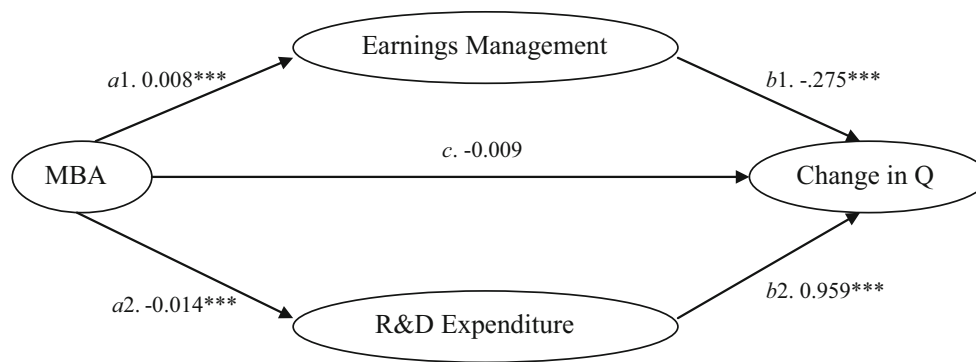


Fig. 1 Research model with direct and indirect effects of an MBA on changes in Q

effect”. The total effect mediated measures the percentage of the MBA-change in Q relationship explained by earnings management and R&D. It also allows us to compare the relative importance of the two mediators. We also employ propensity score matching to deal with potential issues of endogeneity (see below).

Findings

The focus of our research was to assess whether MBAs tend to engage in upward earnings management or inferior R&D expenditures that lead to reductions in firm performance. Consistent with Hypotheses 1 and 2, Table 2 Panel A shows that CEOs with an MBA degree are associated with more upward earnings management and lower R&D expenditures. This supports the notion that MBA CEOs engage more in short-term management.⁴

In support of Hypothesis 3, we show in Table 2 Panel B that artificially managed earnings and inferior funding of research and development relate negatively to subsequent firm performance. Specifically, a one standard-deviation increase in positive earnings management reduces subsequent Tobin’s q by 0.04 (which is about 2% of the median level of q) and a one standard-deviation reduction in R&D expenditures decreases subsequent Tobin’s q by 0.12, or 7.5% of the median q . Those values are economically meaningful given that the median change in q for a given year is only 0.02, or 1% of the median q .

But do MBAs reduce future firm performance *through* those short-term actions? In Table 2 Panel C, we examine this indirect effect through multiple mediation analysis—that MBAs influence change in q through earnings management (EM) and R&D expenditures. To establish the mediation effect, we assess the significance of the indirect effect from earnings management (MBA \rightarrow EM \rightarrow ΔQ),

⁴ In analyses, not reported, we confirmed that positive earnings management and reducing R&D did increase contemporaneous return on assets.

from R&D (MBA \rightarrow R&D \rightarrow ΔQ), and the combined effect from both mediators because, as Zhao et al. (2010) noted, “[the] only one requirement to establish mediation, [is] that the indirect effect be significant.”

The indirect relationship is reflected in the graphical illustration of Fig. 1. Coefficients a_1 and a_2 represent the direct relationship between an MBA CEO and short-term conduct (Table 2 Panel A). Coefficients b_1 and b_2 reflect the relationship between such behaviors and changes in firm performance (Table 2 Panel B). Following Zhao et al. (2010), the indirect relationships from MBA \rightarrow EM(R&D) \rightarrow ΔQ are estimated as $a_1 * b_1$ ($a_2 * b_2$) and the total indirect effect of an MBA degree via both EM and R&D is thus $a_1 * b_1 + a_2 * b_2$. The combined total effect of an MBA degree is the sum of the indirect and direct effects: $a_1 * b_1 + a_2 * b_2 + c$. Standard errors are estimated as a nonlinear combination of the individual standard errors.⁵

In Table 2 Panel C, we report the indirect effects and their statistical significance. We find that the indirect effects of EM and R&D are negative and significant. This is consistent with our expectation that having an MBA increases the proclivity toward short-term management, which in turn leads to declines in Tobin’s q . CEOs having an MBA degree on average have a drop in Q that is 0.024 more than that of a non-MBA CEO. We show that 64% of the drop can be explained through both upward earnings management and R&D cuts: earnings management explains 9% of the relationship, while R&D explains 55% of the relationship. Thus, it appears that the negative impact of MBA CEOs on firm performance comes largely from inadequate funding of R&D.

We also address the concern that the CEO hiring decision is endogenous: that is, that firms that choose to hire an MBA CEO are those that already exhibit more self-centered behaviors and falling performance. One way to assess this issue is by propensity score matching—matching MBA

⁵ The estimates of the indirect effect are assumed to be normally distributed given the sample size.

firms to non-MBA firms whose features would suggest a similar probability of having an MBA CEO, and then comparing the consequences. To do this, we first run a probit regression to model the probability of a firm having an MBA CEO based on a set of firm characteristics that proxy for performance (Tobin's Q), size (log of total assets), leverage, and growth (revenue growth and asset growth). Based on the regression estimations (Table 3 Panel A), each MBA firm is matched to a non-MBA firm with the closest probability score in the same industry year. In Table 3 Panel B, we demonstrate that the MBA firms still show significantly higher earnings management, lower R&D, and steeper decreases in Tobin's q compared to the matching firm. This finding mitigates concerns that our results are shaped by firm hiring proclivities.

Follow-Up Analyses

Robustness Checks

In order to establish the robustness of our findings regarding earnings management, we employed several different measures of the latter that have been used in the literature, namely those of Marquardt and Wiedman (2004) based on specific types of discretionary accounting data. We used unexpected accounts receivable (UAR) and unexpected inventory (UINV) as substitutes for the more encompassing Dechow et al. (1995) measure we employed in our principal analyses. As can be seen from "Appendix 1", panels A–C, our original results do appear to hold up, albeit more weakly, under these more specialized measures.⁶

Compensation Increases

As we have seen, a subtext in much of the literature on MBAs is that they are selfish and opportunistic. In that case, they may engage in short-term practices not only because of impatience for results, but in order to benefit themselves. There are many possible benefits from

⁶ There are currently numerous other measures of EM but these could not be used in our analysis due to the unavailability of data, the specialized nature of a measure to particular circumstances (M&A, restructuring, and management buybacks) or industry, and changes in reporting regulations. For example, Moehrl (2002), measured EM through the decision to reverse and the amount of reversal of restructuring charges; he hand-collected data through newspaper searches. Schrand and Wong (2003) used a method specific to the banking industry, which does not pertain to our sample. Balsam et al. (2003) gauged EM through the timing of allocation of the value of stock option grants which is no longer practical due to changes in statutory regulations. Picconi (2006) used off balance sheet items and Dhaliwal et al. (2004) used control variables to which we had no access.

Table 3 Propensity score matching

Variables	Probability of an MBA CEO				
Panel A: Probit regression results					
Total asset (log) $t - 1$	0.023* (1.79)				
Q $t - 1$	−0.010 (−0.82)				
Leverage $t - 1$	0.046 (0.43)				
Revenue growth $t - 1$	−0.049* (−1.71)				
Asset growth $t - 1$	−0.059* (−1.66)				
Constant	−0.152 (−0.28)				
Industry + year	Yes				
Observations	18,766				
	<i>n</i>	Treatment-MBA	Control non-MBA	Dif (MBA–non-MBA)	<i>t</i>
Panel B: MBA versus the matching non-MBA firm					
EM	7400	−0.006	−0.011	0.004**	2.20
R&D	7400	0.069	0.074	−0.004***	−2.59
Change in Q	7400	−0.0147	0.017	−0.032**	−2.14

Propensity score matching based on the probability of a firm having an MBA CEO. Panel A reports the probit regression results on the probability of a firm with an MBA CEO predicted by lagged firm characteristics. Year and industry dummies are included, and the regressions are clustered at firm level. Panel B compares the EM, R&D and change in Tobin's q of the MBA firm with a control non-MBA firm that is matched based on the closest probability of having an MBA CEO

Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level

achieving immediate bottom line results, including, for example, reputation, job security, additional job offers, and personal prestige. However, a more readily measurable private benefit is a superior increase in compensation following short-term practices (Cheng and Warfield 2005). Indeed, our arguments would be rendered more credible if positive earnings management and minimization of R&D expenses were associated with increases in compensation of the CEO. Thus, for follow-up analyses, we computed changes in CEO compensation using the total compensation growth from year $t - 1$ to year t , where total compensation was obtained from the Execucomp database. To normalize the variable, compensation growth was calculated as $\log(\text{total compensation})_t - \log(\text{total compensation})_{t-1}$.

In "Appendix 2", a firm fixed effects analysis is reported that shows the effect of short-term management on the contemporaneous growth rate in CEO compensation. In addition to the control variables mentioned above, it includes the lagged value of Tobin's q to control for performance and the lagged value of compensation (logged) to control for mean reversion. All regressions were run with firm and year fixed effects, and clustered at the

firm level. This analysis reveals the significant extent to which short-term management behaviors influence CEO compensation within a given firm. It shows that positive earnings management and reduced R&D expenditures are correlated with a superior MBA compensation growth rate within a given firm. For any firm, a one standard-deviation increase in earnings management adds 2% to the compensation growth rate, and a one standard-deviation decrease in R&D increases the compensation growth rate by 11%. These outcomes appear to represent significant incentives for MBAs to engage in short-term management behaviors.

Incompetency Versus Opportunism

There are several possible reasons why CEOs may engage in earnings management and R&D minimization despite their longer-term costs. One is simple incompetency. Those with inferior ability or confidence may attempt to make themselves look more effective by expedients that show quick results on the bottom line. To explore that possibility, we partitioned the sample of MBAs into those who had graduated from the top 20 MBA programs in the USA (see the “[Methods](#)” section) and those who obtained their MBAs from less superior programs. The results are reported in “[Appendix 3](#)”, and they did surprise us. They show that MBAs from the better schools were actually *more* likely to engage in earnings management and inferior R&D expenditure and therefore to incur the associated costs to subsequent market valuations. We can conclude that it is not likely to be incompetency that leads MBAs to adopt these strategies, but rather perhaps the pursuit of the private benefits mentioned above.

Governance Drivers of Short-Term Management

Our final question asked whether incompetent boards or those interested in short-term results such as quick gains in profitability would be more likely to hire MBAs and therefore that it is board objectives and pressures as much as MBA values and priorities that determine short-term management. To explore this, we examined various indicators of effective governance using the same base models and analyses as shown in [Table 2](#). These included CEO duality, the % of independent directors, and board size. We also added board characteristics such as % of board members from top universities and % of board members with an accounting background. None of these variables reduced the chances of an MBA being hired as CEO, and none of them interacted with MBA CEO governance in a manner that altered its effects on earnings management or

R&D suppression. These analyses are all available from the authors.

Discussion

Certainly, the growing literature on corporate social responsibility and business ethics has made significant contributions over the past decades. Ample research has been conducted showing the different ethical problems in organizations, their locus, and their impact on society (e.g., Evans and Robertson 2003; Freeman 2010). Less work has been done on the sources of particular types of ethical lapses, particularly as they refer to the educational choices and experiences of especially influential organizational actors. This study is an attempt to advance this area of inquiry by examining management conduct at major, publicly listed companies—companies that collectively employ a significant fraction of the US population and whose investors and employees are to be found in all walks of society throughout the country. We found that when the CEOs of these firms possessed an MBA degree, their companies were more likely to engage in the short-term tactics of positive earnings management and the restriction of R&D expenses. Although these practices increased CEO compensation, they tended to hurt firm market valuations, probably because these expedients tend to damage the knowledge capital and perhaps the reputation and credibility of companies.

It is important to again emphasize that we cannot prove that MBA educations cause these results. It may well be that those with self-serving values favor MBA programs. That ambiguity does not, however, alter the fact of the connection we found between education, firm conduct, and firm and executive outcomes—important signals for stakeholders of these companies. Moreover, although some might argue that boards with short-term profit objectives hire more MBAs or pressure them to pursue such objectives, we could detect no such relationships between numerous firm governance variables and the hiring or short-term managerial conduct of MBA CEOs.

It will be useful for subsequent researchers to determine to what degree these findings hold in private firms. For example, would family businesses, with the family name on the firm and aspirations for family succession, be more likely to “manage for the long run” (Le Breton and Miller 2015; Miller and Le Breton-Miller 2005)? Would smaller companies benefit more from the professional skills of an MBA? Would local institutional environments have an effect on the managerial time horizons and interests of CEOs? Clearly, there is more work to be done to condition the results of this study and to more thoroughly tease out its implications for ethical conduct and corporate social responsibility.

Compliance with Ethical Standards

Appendix 1

Conflict of interest The authors declare that they have no conflict of interest.

See Table 4.

Ethical Approval This article does not contain any studies with human participants performed by any of the authors.

Table 4 Robustness test for MBA, short-term management and performance

Variables	UAR	UINV	R&D
Panel A: MBA, UAR/UINV and R&D			
MBA	0.001** (2.36)	0.001* (1.82)	-0.014*** (-4.19)
Top schools	0.000 (0.04)	-0.001 (-1.00)	0.013*** (3.55)
Board size (log)	0.002 (1.28)	0.003* (1.94)	0.013* (1.67)
% Independent directors	-0.000 (-0.03)	-0.000 (-0.19)	0.069*** (5.92)
CEO duality	0.000 (0.67)	0.001 (1.45)	-0.015*** (-4.91)
Female	-0.001 (-0.53)	-0.000 (-0.09)	0.008 (0.80)
Age	-0.002 (-0.79)	-0.002 (-1.07)	-0.030** (-2.54)
Tenure	0.000 (0.77)	0.001* (1.73)	0.001 (0.77)
Assets (log) $t - 1$	0.000 (0.81)	0.000 (1.13)	-0.019*** (-15.33)
Leverage $t - 1$	-0.006*** (-3.00)	-0.005*** (-3.10)	-0.038*** (-4.20)
Book to market $t - 1$	0.002** (2.31)	-0.002** (-2.50)	-0.038*** (-13.68)
Revenue growth $t - 1$	-0.004* (-1.87)	-0.003** (-2.07)	-0.010*** (-3.09)
Constant	-0.008 (-0.70)	-0.006 (-0.55)	0.246*** (4.54)
Year and industry dummies	Yes	Yes	Yes
Observations	19,611	19,611	19,611
Adjusted R^2	0.010	0.002	0.384
Variables	Change in Q		
Panel B: MBA, UAR/UINV, R&D and change in Q			
MBA	-0.008 (-0.57)		-0.008 (-0.56)
UAR $t - 1$	-0.437** (-2.35)		
UINV $t - 1$			-0.889*** (-4.68)
R&D $t - 1$	1.068*** (9.70)		1.061*** (9.64)
Top schools	0.020 (1.26)		0.019 (1.24)
Board size (log)	0.005 (0.12)		0.006 (0.16)
% Independent directors	0.025 (0.48)		0.025 (0.48)
CEO duality	0.010 (0.71)		0.011 (0.74)
Female	0.001 (0.01)		0.001 (0.02)
Age	-0.180*** (-3.10)		-0.182*** (-3.13)
Tenure	0.037*** (4.42)		0.037*** (4.48)
Assets (log) $t - 1$	-0.022*** (-4.18)		-0.022*** (-4.20)
Leverage $t - 1$	-0.009 (-0.19)		-0.011 (-0.23)
Book to market $t - 1$	-0.214*** (-10.81)		-0.216*** (-10.89)
Revenue growth $t - 1$	-0.052 (-1.56)		-0.053 (-1.60)
$Q_t - 1$	-0.317*** (-24.15)		-0.317*** (-24.14)
Constant	1.927*** (7.24)		1.926*** (7.25)
Year and industry dummies	Yes		Yes
Observations	19,611		19,611
Adjusted R^2	0.257		0.258

Table 4 continued

	Coef.	SE	z	$P > z$	Total effect mediated (%)
Panel C: Indirect effects of MBA CEOs on changes in Q through EM and R&D					
(a) Using UAR as alternative EM measure					
Indirect from UAR	-0.0006	0.0004	(-1.63)	0.103	2.5
Indirect from R&D	-0.0145***	0.0038	(-3.84)	0.000	62.8
Combined total indirect	-0.0151***	0.0038	(-3.98)	0.000	65.3
(b) Using UINV as alternative EM measure					
Indirect from UINV	-0.0008*	0.0005	(-1.7)	0.089	3.5
Indirect from R&D	-0.0144***	0.0038	(-3.84)	0.000	62.4
Combined total indirect	-0.0152***	0.0038	(-4.02)	0.000	65.9
	UAR		UINV		EM
Panel D. Correlations between UAR, UINV and EM					
UAR	1				
UINV	0.16		1		
EM	0.11		0.09		1

Multiple regression results of the impact of a CEO having an MBA degree on alternative earnings management measures UAR (unexpected accounts receivables), UINV (unexpected inventories), and R&D expenditures (Panel A); and UAR, UINV, R&D on changes in Q (Panel B). Year and industry dummies are included and the regressions are clustered at firm level. Panel C reports the indirect effect of MBA on changes in Q through UAR/UINV and R&D expenditure. Panel D reports the correlations between the alternative earnings management measures and our main earnings management measure EM. t statistics are in parentheses

Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level

Appendix 2

See Table 5.

Table 5 Earnings management, R&D, and compensation growth

Variables	Compensation growth	
EM	0.145* (1.81)	
R&D		-0.885*** (-3.32)
Top schools	-0.025 (-0.74)	-0.022 (-0.67)
Board size (log)	0.012 (0.16)	0.023 (0.33)
% Independent directors	0.221* (1.75)	0.224* (1.77)
CEO duality	0.086*** (3.27)	0.084*** (3.19)
Female	-0.017 (-0.27)	-0.018 (-0.29)
Age	-0.274** (-2.08)	-0.285** (-2.16)
Tenure	0.057*** (4.82)	0.056*** (4.81)
Assets (log) $t - 1$	0.188*** (7.05)	0.170*** (6.50)
Leverage $t - 1$	-0.339*** (-3.56)	-0.341*** (-3.59)
Book to market $t - 1$	-0.145*** (-4.83)	-0.150*** (-5.04)
Revenue growth $t - 1$	0.000 (0.01)	-0.001 (-0.02)
Q $t - 1$	0.063*** (5.00)	0.065*** (5.15)
Compensation (log) $t - 1$	-0.864*** (-50.28)	-0.865*** (-50.54)
Constant	6.206*** (11.26)	6.385*** (11.58)
Year and firm fixed effect	Yes	Yes
Observations	8261	8261

Table 5 continued

Variables	Compensation growth	
R-squared	0.484	0.485

Multiple regression results of the impact of upward earnings management (EM) and R&D expenditures on compensation growth. Panel regression with year and firm fixed effects; regressions are clustered at the firm level. *t* statistics are in parentheses

Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level

Appendix 3

See Table 6.

Table 6 MBA CEOs, top schools, and short-term management

Variables	EM	R&D
MBA	0.003 (0.98)	-0.010** (-2.42)
Top schools	-0.014*** (-3.21)	0.018*** (3.49)
MBA * top schools	0.013** (2.15)	-0.012* (-1.70)
Board size (log)	-0.005 (-0.61)	0.013 (1.58)
% Independent directors	-0.037*** (-3.28)	0.071*** (6.09)
Dual (CEO = chair)	0.004 (1.42)	-0.014*** (-4.62)
Female	0.000 (0.06)	0.007 (0.69)
Age	0.049*** (4.64)	-0.031*** (-2.59)
Tenure	0.009*** (5.54)	0.001 (0.33)
Assets (log) <i>t</i> - 1	0.005*** (3.49)	-0.021*** (-15.58)
Leverage <i>t</i> - 1	-0.017* (-1.94)	-0.035*** (-3.82)
Book to market <i>t</i> - 1	-0.005 (-1.43)	-0.038*** (-13.60)
Revenue growth <i>t</i> - 1	-0.006 (-1.16)	-0.012*** (-3.36)
Constant	-0.194*** (-4.11)	0.240*** (4.31)
Year and industry dummies	Yes	Yes
Observations	19,068	19,068
Adjusted <i>R</i> ²	0.028	0.390

Multiple regression results of the impact of a CEO having an MBA degree from top university on earnings management (EM) and R&D expenditures. Year and industry dummies are included, and the regressions are clustered at the firm level. *t* statistics are in parentheses

Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level

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