Strategic Management Journal
Strat. Mgmt. J. (2014)
Published online EarlyView in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/smj.2267
Received 2 June 2013; *Final revision received 16 March 2014*

UPPER-ECHELON EXECUTIVE HUMAN CAPITAL AND COMPENSATION: GENERALIST VS SPECIALIST SKILLS

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This study extends current knowledge of upper echelon executive compensation beyond the CEO, specifically CFO compensation, based on whether they possess generalist or specialist skills. We find that "strategic" CFOs with an elite MBA (generalist) consistently command a compensation premium, while "accounting" CFOs (specialist) and CFOs with a non-MBA master's degree, even from an elite institution, do not. Further, scarce "strategic" CFOs are awarded both higher salaries and higher equity-based compensation. Our findings support the view that unique complementarities between scarce CFOs and firms increase these executives' bargaining power leading to pay premium. Our results are robust to post-hiring years, firm sizes, board characteristics, and CFO's insider/outsider status. We contribute at the confluence of upper-echelon compensation, executive human capital, resource-based view, and assortative matching literatures.

INTRODUCTION

Researchers have shown a sustained interest in understanding the determinants of executive compensation (see e.g. Pandher and Currie, 2013; for a summary, see Finkelstein, Hambrick, and Cannella, 2009). However, prior research has focused primarily on the compensation of the Chief Executive Officer (CEO), leaving us with very little knowledge regarding the drivers of compensation for other C-suite executives. In this paper, we focus on the compensation of the Chief Financial Officer (CFO), who is arguably the next most important member of the top management team (TMT). Given that CFOs are increasingly becoming more crucial in the upper echelons of organizations in terms of crafting and executing corporate strategy, we ask in this study, what type of human capital is valued by corporations as reflected in the actual compensation packages of CFOs?

A central tenet of the human capital theory, echoed in the strategy literature, is that the unique managerial capabilities that executives bring to the organization influence their compensation (Andrews, 1971). In a related but distinct vein, the upper echelons theory proposed by Hambrick and Mason (1984) postulates that the demographic characteristics and background of TMT members influence strategic decisions, which can directly impact organizational performance and firm value creation. They specifically argue that examination of the upper echelons' perspective has the potential to shed light on the *value* of "those with formal management education, or those whose dominant career emphasis has been in a particular *functional* (emphasis added) area." While the importance of strategic human capital at the highest level of the organization is not well understood (Finkelstein *et al.*, 2009), recent research is making some inroads by showing empirically that scarce human

Keywords: chief financial officer; human capital; executive education quality; generalist vs. specialist skills; upper echelon executive compensation; top management team (TMT); CFO labor market
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capital substantially impacts firm performance (Bertrand and Schoar, 2003; Khanna, Jones, and Boivie, 2014; Mackey, 2008).

Further, the resource-based view posits that superior managerial skills considered a unique organizational source of competitive advantage are expected to drive firm performance because difficult to imitate capabilities reflect a unique organizational source of sustainable competitive advantage (Barney, 1991; Castanias and Helfat, 1991; Coff, 2002; Finkelstein and Hambrick, 1990). In this regard, executive compensation is key to firm performance because skilled executives may shirk their responsibilities if they were not adequately rewarded for their contributions to the firm (Castanias and Helfat, 1991). Moreover, executives satisfied with their pay exhibit superior performance (Zajac, 1990). Thus, setting equitable executive compensation that considers human capital of executives is important because such attributes are reflected in strategic decision-making and firm outcomes.

This study contributes toward our understanding of executive compensation in the upper echelons of corporations based on whether they possess "strategic" generalist skills or narrower specialist skills. Relying on assortative matching framework (Rosen, 1981), we assume that firms are able to identify which of the above two general types of CFOs best match their needs, and hire the appropriate executive for the job. We argue that firms that hire an executive with generalist skills are in need of a "strategic" CFO as opposed to firms selecting a functional "accounting" CFO. In particular, we seek to address the following questions: Which qualifications command a premium in the CFO labor market? Do CFOs with broader "strategic" skills obtained from an MBA degree command a higher premium relative to the CFOs with functional accounting expertise? Do elite strategic CFOs, with "elite" MBA credentials, who arguably possess more scarce human capital, command a pay premium in their compensation packages? As far as the pay structure is concerned, which components in the CFO compensation package drive the pay premium?

Of the members of the TMT, we chose to study the CFO for several compelling reasons. First, this position has become increasingly the most prominent in the C-suite next to the CEO with 97 percent of firms having a CFO (Nath and Mahajan, 2008). Second, of all top officers, the Securities and Exchange Commission requires firms to disclose only the compensations of the CEO and CFO in the annual proxy statements. Third, unlike other upper echelon members, the responsibilities of the CFO are relatively more consistent and homogeneous across firms. Hence, our findings should be more generalizable across firms and industries. Further underscoring the importance of CFO pay are recent works showing how technical expertise in the governance structure influences CFO compensation (Gore, Matsunaga, and Yeung, 2011), and how CFO pay drives strategic decisions and outcomes (Chava and Purnanandam, 2010; DeFond, Hann, and Hu, 2005).

While earlier researchers, focusing on the CEO, did not find a link between CEO pay and demographic characteristics (Agarwal, 1981), more recent papers, employing larger samples and diverse set of industries, have found that CEO pay is influenced by general human capital (Custodio, Ferreira, and Matos, 2013) and CEO talent (Cremers and Grinstein, 2013). Further, Harris and Helfat (1997) and Bidwell (2011) show that the specificity of managerial skills, proxied by internal or external CEO successors, determines compensation. However, prior research on the relevance of executive characteristics to compensation focused exclusively on the CEO, and not on other members of the upper echelon team. Following Harris and Helfat's approach, we focus on the skills that CFOs bring to the organization and their relevance to compensation. In particular, we categorize executive human capital in terms of generalist or specialist skills. Specifically, CFO specialists are defined as those possessing deep expertise in the accounting functional area, while generalist CFOs, defined as those who earned an MBA degree, fulfill the need of a "strategic" CFO because the MBA degree imparts a broader, strategic knowledge-base. We posit that "strategic" CFOs with their sophisticated skill-set would command a pay premium, while "accounting" CFOs with functional expertise, who are primarily responsible for keeping the financial systems working properly would not. Further, we consider CFOs with elite MBA credentials to represent a more scarce resource to the firm, and hence would be even more valuable to the firm in need of their talent and social network.

Using actual compensation data and a large hand-collected, proprietary database on the educational qualifications of CFOs who were hired during the period, 1994–2007, this study is the first to document a compensation premium for

DOI: 10.1002/smj

CFOs with scarce human capital. After controlling for previously established determinants of compensation, we find that boards of directors confer a significant pay premium to candidates who have generalist skills (MBA) and elite generalist skills, those with an MBA degree obtained from a high-quality educational institution. However, we find no evidence that boards place value on functional background (accounting) or non-MBA advanced degrees. These findings corroborate those in Beyer *et al.* (1997) and Geletkanycz and Black (2001) that boards recognize that specialized (narrow) skills at the upper echelon could lead to less than optimal strategic corporate decisions.

We conduct a number of robustness checks. First, we find that the relations between CFO pay and CFO characteristics persist in the subsequent years after the appointment. Second, the evidence indicates that both large and small firms value high-quality MBA CFOs and compete for those CFOs by offering comparable (and significant) qualification premia. Third, when we control for board characteristics, our results remain invariant to the inclusion of those variables. Of the three board characteristics that we include in our regressions, we find that busy boards, with less time to monitor executives, offer larger compensation packages. Fourth, we control for the insider/outsider status of the CFO and find that outsider CFOs command higher compensation than insiders, in line with literature on CEO compensation. However, once we control for insider/outsider status, we find that corporate boards value only scarce human capital, where only the elite MBA CFOs continue to command a compensation premium. This result implies that it is not the breadth of the MBA qualification but the quality of the generalist training that lead to higher pay. This complements a recent study by Miller, Xu, and Mehrotra (2014) who find CEOs from Ivy League universities are a rent-sustaining resource and conclude that such elite CEOs lead the firm to higher and more sustained valuation. The elite MBA CFO compensation premium is also consistent with the notion that these elite professionals bring with them valuable social networks. Our results showing that boards put more emphasis on superior and broad managerial training rather than narrower but deeper knowledge when hiring a CFO parallel research examining CEO human capital (Custodio *et al.*, 2013).

Finally, we conduct additional analysis to identify what role does CFO human capital play in determining the different components of the pay package. We find that "strategic" and elite "strategic" CFOs receive higher salary in support of Core, Guay, and Verrecchia's (2003) and Harris and Helfat's (1997) notion that salary reflects the skill for positions lower than the CEO. Our analysis also indicates that equity-based incentives of this group of CFOs are significantly higher. Thus, this evidence implies that pay contracts are tailored to CFO qualifications. In combination, our findings suggest that relevant scarce resources are valued highly by the executive labor market.

Overall, this study contributes to our knowledge of executive compensation practices and adds to the growing strategy literature that aims to identify the influence of executive human capital on compensation (Bidwell, 2011; Hambrick and Mason, 1984: Harris and Helfat, 1997; Kaplan, Klebanov, and Sorensen, 2012; Mackey, Molloy, and Morris, 2014). Our analysis also adds to the literature on the value of generalists versus specialists in the upper echelons of corporations (Custodio *et al.*, 2013; Ferreira and Sah, 2012; Murphy and Zábojník, 2007).

CFO HUMAN CAPITAL AND COMPENSATION

The strategy literature has recognized that the characteristics of executives shape strategic decisions (Bertrand and Schoar, 2003; Finkelstein and Hambrick, 1990; Wright and Kroll, 2002), firm quality (see e.g. Cohen and Dean, 2005; Higgins and Gulati, 2006), competitive moves (Hambrick, Cho, and Chen, 1996), diversification (Wiersema and Bantel, 1992), and acquisition activities (Song, 1982). One key characteristic of executives is their educational credentials that are likely to determine their ability to make strategic decisions. While human capital theory suggests that pay premia reflect executives' superior managerial skills, it is not clear which specific training is relevant and valued by the CFO labor market. Some studies show that specialization makes individuals better processors of information (Bolton and Dewatripont, 1994), whilst others have argued that experts (or specialists) are less accurate forecasters of issues within their own field of expertise than non-experts (Tetlock, 2005).

DOI: 10.1002/smj

While conventional wisdom posits that a CFO who is a professionally certified public accountant ensures that the company "does not trip the wires" so to speak, by meeting accounting standards, there is an on-going debate on the merits of having an accounting background to certain managerial positions. Prior research finds that accounting expertise is relevant for certain positions, such as for members of the audit committee (DeFond *et al.*, 2005) and for controller positions (Vafeas, 2009).

Although beneficial, specialized accounting expertise has limitations. Researchers are increasingly recognizing that general managerial skills are becoming more important (Finkelstein and Hambrick, 1989; Murphy and Zábojník, 2007). Finkelstein and Hambrick (1989) postulate that CEOs with a general management experience tend to have expertise of greater strategic relevance than those with specific functional expertise. Work in the strategy literature demonstrates that executives vary in their interpretations of industry conditions (Lant, Milliken, and Batra, 1992) and that those with prolonged experience in the functional area exhibit a different pattern of decision-making (Geletkanycz and Black, 2001). More specifically, Beyer *et al.* (1997) and Geletkanycz and Black (2001) find that top executives with deep expertise in a functional area (in our case, the accounting area) are more likely to adhere to existing strategic policies, which imparts a narrowing of perspective and less flexible decision-making. Moreover, studies have also shown that broader generalist skills are more valued than narrow specialist skills at the upper echelon (Custodio *et al.*, 2013) and that MBA CEOs outperform other CEOs (Bertrand and Schoar, 2003). If executive attributes are reflected in strategic decisions and organizational outcomes, the question then arises whether corporate compensation committees recognize these characteristics in designing top managers' compensation packages.[1]

Research has also shown that a master's degree in accounting confers benefits in early and mid years of one's career but the analytical skills and broader strategic perspective acquired from an MBA are advantageous in later career years (Weir, Stone, and Hunton, 2005). Wright (1988) finds that MBAs and MBAs from top-rated schools advanced more rapidly in their careers than undergraduates with accounting majors. Recently, Ferreira and Sah (2012) show theoretically that executives higher in the organization are more likely to have broader (generalist) expertise such as an MBA.

Unlike the controller, who is charged with managing the technical aspects of accounting, the CFO's position may require broader financial management and strategic leadership skills. While the Sarbanes-Oxley Act of 2002 highlights the CFO's function of overseeing the preparation of accounting statements, CFOs may also be involved in financing and investment strategies, such as raising capital, corporate payout decisions, and deciding on appropriate acquisition deals, all of which influence firm performance and value creation. In addition, the CFO's role increasingly demands communicating with external constituents, such as the financial markets, investors, and analysts. All these responsibilities require CFOs to play a key strategic role in the C-suite.

An important dimension to this discussion emanates from the demand side of the CFO labor market and is rooted in assortative matching models (Gabaix and Landier, 2008; Rosen, 1981, 1982; Terviö, 2008). Scholars have posited that the pay of top executives is determined in a competitive labor market where executives possessing different capabilities are matched to firms with different characteristics and needs. These models predict that the ablest executives who exhibit greater productivity should earn higher pay as they are matched with firms such that the marginal impact of their talent is maximized.[2] Additionally, recent work documents that in the presence of complementarity between upper echelon human capital and firm resources, the combination of both types of resources creates greater value than what the individual

[1] While it can be argued that education, both its relevance and quality, may be irrelevant to top executives as they have already achieved a high measure of success, there are cross-sectional differences within this group of "high achievers" due to innate and observable skills reflected by their credentials. There is evidence that executives at similar levels differ widely in their abilities (Crossland and Hambrick, 2007) and their effectiveness (Peterson *et al.*, 2003). Even after ability is revealed, education as a marker of underlying cognitive ability still correlates with compensation (Farber and Gibbons, 1996). Further, because a large proportion of CFOs in our sample are external hires (56%), greater than that observed for CEOs in prior research, CFO credentials are more likely to play an important role in their pay due to greater information asymmetry associated with external hires and therefore, greater reliance on their credentials.

[2] Recent empirical work shows that better educated managers choose to work at (and are hired by) riskier unregulated firms (Palia, 2000).

DOI: 10.1002/smj

resources can accomplish separately (Mackey *et al.*, 2014).

Given this backdrop, it may be optimal for some firms to hire a "strategic" CFO with an MBA who will bring broader strategic knowledge and leadership skills, while for other firms it may be more optimal to recruit an "accounting" CFO who will be primarily responsible for ensuring that the financial reporting system functions properly. Several factors may contribute to a firm seeking a "strategic" CFO, such as product market competition, industry consolidation via mergers and acquisitions, frequent and sophisticated dealings with the capital markets, entry into new markets or product lines, the need to turnaround the financial condition of a firm, among others. Strategic CFOs' jobs require the ability to deal with complexity (Finkelstein and Hambrick, 1990) and routinely involve making decisions with incomplete information combined with some level of uncertainty. In comparison to an "accounting" CFO, a "strategic" CFO's responsibilities are much broader in scope, more dynamic and demanding, and strategically more important. Therefore, a "strategic" CFO will typically have to be compensated more for their sophisticated skill-set and cognitive abilities that are necessary for that position. Since boards of directors will not pay a price, in terms of executive compensation, for a resource greater than its value to the firm, the "accounting" CFO's compensation is not expected to be as high as that of "strategic" CFOs who allow the firm to exploit more opportunities. Drawing on these arguments, we propose the following two hypotheses:

Hypothesis 1: CFOs with broad strategic business knowledge and leadership skills, obtained through an MBA, should command a higher compensation package compared to CFOs without such skills.

Hypothesis 2: CFOs with specialized accounting skills will have lower compensation compared to that of other CFOs.

The literature on human capital and information signaling in the job market presents compelling rationales as to why educational attainment, especially from prestigious institutions, are effective indicators of cognitive abilities, which can bestow economic advantages (see Becker, 1964). Previous research also posits that attending top-notch universities allows the executive to acquire social capital in the form of personal contacts that can prove useful in their professional career.

The ability to manage effectively may be due to a number of human capital attributes such as the ability to process complex information or allocate resources efficiently (Finkelstein *et al.*, 2009). These managerial skills are rare and difficult to acquire (Castanias and Helfat, 1991; Mackey *et al.*, 2014). Due to the limited ability to substitute between quality and quantity of human capital, "superstars" with the highest skill levels will be matched with firms based on the size of the market and, as a result, will earn extraordinary pay for their talent due to increasing payoff of capabilities (Rosen, 1981). Mackey *et al.* (2014) propose that top executives with scarce strategic human capital are more likely to engage in employment relationships with resource-rich firms than other firms. In the presence of these unique complementarities, senior executives possessing scarce human capital will have a better bargaining position with the board of directors. In other words, because executives with scarce human capital can deliver more value if they are matched with resource-rich firms in need of strategic skills, their higher bargaining power leads to higher compensation. From the firm's perspective, it strives to make the right hiring decision and is willing to invest in intangible assets of scarce strategic human capital because it expects this resource to provide more sustained competitive advantage and larger value creation.

Compared to all other CFOs, those with an *elite* MBA degree will be more scarce as they will typically have superior talent and cognitive abilities, as well as a more sophisticated knowledge-base. In addition, elite CFOs bring along a valuable social network. There is growing evidence that social capital benefits organizations by enhancing strategy and firm outcomes (Geletkanycz and Hambrick, 1997). Further, Geletkanycz, Boyd, and Finkelstein (2001) argue that because executives' social network confers benefits of "considerable strategic value" to the firm, such network capital should be reflected in executive pay. Brown *et al.* (2012) advance the view that executive's social network reflects the degree of executive's bargaining power in the labor market. Empirical evidence supports the notion that CEO compensation is positively related to the social network (Brown *et al.*, 2012; Geletkanycz *et al.*, 2001). Based on the above discussion, we propose the following hypothesis:

DOI: 10.1002/smj

Hypothesis 3: Elite "strategic" CFOs (those with an elite MBA degree) will command a compensation premium relative to their CFO counterparts without such qualification.

Arguably, education is valuable if it is relevant to the CFO position. Because firms use *relevance* of education as a signal of managerial ability for the position, CFOs with *non-MBA* master's degrees, even those obtained from elite institutions, will not see any compensation premium. Hence, based on the above discussion, we propose the following hypothesis:

Hypothesis 4: CFOs with non-MBA master's degrees will not see a talent premium in their compensation package.

EMPIRICAL METHODS

Sample and data sources

We examine CFO pay at the time of appointment. To create a list of newly appointed CFOs, we begin the data collection process by obtaining the first time a CFO's name is associated with a certain company in the ExecuComp database from 1994 to 2007. First, we conduct this search by looking for various phrases such as "chief financial officer," "chief finance officer," "CFO" and other similar labels and then identify the appointment year. All interim or acting CFOs are eliminated. CFO educational profile and age are manually collected from multiple sources, including www.businessweek.com, www.zoominfo.com, www.forbes.com, Marquis Who's Who, firms' annual reports, and other publicly available information. We record whether the CFO has an MBA degree or non-MBA master's degree and the institution from where the degree was earned. To proxy for accounting expertise, we collect information on whether the CFO received a professional accounting certification such as a Certified Public Accountant, Certified Management Accountant or Chartered Accountant certifications. Firm information is obtained from the COMPUSTAT database and stock return data from the University of Chicago's Center for Research in Security Prices database. All compensation data are obtained from Standard and Poor's ExecuComp database. The final sample is composed of 1,598 CFOs.

Method for measuring the impact of CFO credentials on CFO compensation

We employ regression analysis to assess the influence of CFO credentials to compensation packages. The following specification is the base model used in the analysis:

$$\begin{aligned} CFO\ Pay_{t} = {} & \beta_0 + \beta_1 CFO\ Characteristic_{t-1} \\ & + \beta_2 Size_{t-1} + \beta_3 LEV_{t-1} + \beta_4 ROA_{t-1} \\ & + \beta_5 VOL_{t-1} + \epsilon \end{aligned} \quad (1)$$

Regressions are estimated employing year fixed effects and industry effects using industry dummies representing two-digit SIC industry groupings. *P*-values are calculated using White's heteroskedasticity-corrected standard errors. To limit the influence of outliers, firm variables are winsorized at the one percent cutoff at both tails.

Independent focus variables

We operationalize our hypotheses by constructing four distinctive metrics of CFO characteristics based on the type of degree received (MBA or non-MBA master's), perceived quality of the MBA program, and professional accounting expertise. We employ the influential *US News & World Report*'s (*USNWR*) 2011 rankings of the top 100 MBA programs to classify the quality of the schools. *MBA-Top25* takes a value of 1 if the CFO received an MBA degree ranked in top 25 programs. We define two indicator variables, *MBA* and *Non-MBA*, to distinguish CFOs who received an MBA or a non-MBA master degree (a masters' or law degree), respectively. *Acct_Expertise* equals 1 if the CFO received an accounting certification. We also conduct all our tests using variables based on whether the CFO received a degree from top 10 ranked universities. All inferences remain the same. Finally, in line with previous literature, we include CFO age as a proxy for CFO experience (Hambrick and Mason, 1984) since education and practical experience are distinctly different (Becker, 1964).

Dependent variables

The dependent variable, *CFO Pay*, is measured as the natural logarithm of total compensation (in 2008 dollars), including salary, bonus, options granted, restricted stock and other pay for the first full year

DOI: 10.1002/smj

the executive was in the CFO position. We also examine the determinants of salary and equity based incentives separately by employing the following two dependent variables: (1) the natural logarithm of salary compensation and (2) the natural logarithm of (1 + equity-based compensation), both measured in 2008 dollars. Equity-based pay is computed as the value of option grants and the restricted stock owned by the CFO.

Control variables

We employ a number of observable firm characteristics that have been shown to determine the level of executive pay such as firm size, firm profitability and volatility. We employ the natural logarithm of total assets (in 2008 dollars), *Size*, to proxy for firm size and complexity of the firm (Barkema and Gomez-Mejia, 1998). A positive link between firm size and pay is predicted due to the larger economic impact an executive can have when larger resources are under control. *LEV* is measured as total debt to total assets. Firm operating performance, *ROA*, measured as operating cash flows scaled by total assets, is anticipated to be positively associated with pay. Firm risk is key to executive compensation because it reflects the risk in the operating environment. Therefore, we control for firm risk by employing the idiosyncratic risk of firm's daily stock returns for the fiscal year generated from the Fama and French (1993) three-factor model, *VOL*. The expectation is of a positive link between risk and total pay. Firm characteristics are measured as of the year prior to hiring to circumvent potential endogeneity.

Sample description

Table 1 presents the frequency of the different types of CFO profiles, CFO pay packages, and correlations among key variables. Around 63 percent of newly appointed CFOs pursue an advanced degree with 49.2 percent earning an MBA, 12.1 percent a master's degree and 4.1 percent had a law degree. Of those who pursued an MBA, 54.3 percent do so at a top 25 university, with similar proportions observed for those with non-MBA master's degrees. Finally, more than a third of the CFOs have accounting functional expertise. Panel B reports descriptive statistics on CFO compensation (measured in 2008 dollars) and CFO age.

Table 1. Descriptive statistics on CFO characteristics and correlations

Panel A: CFO credentials

Variable	*N*	Frequency
MBA	787	49.25
MBA-Top25	427	26.72
Non-MBA masters	254	16.96
Acct_Expertise	619	38.74

Panel B: Compensation and age

Variable	Mean	Median
Total compensation ($000)	$2,034.17	$1,308.09
CFO age (years)	45.43	45.00

Panel C: Pearson correlations

Variables	*MBA*	*MBA-Top25*	*Non-MBA*	*Acct_Expert*	*CFO age*
Total assets	0.015	0.039	0.035	−0.120***	0.103***
LEV	0.051**	0.047	0.026	−0.045*	−0.021
ROA	−0.030	−0.014	−0.024	0.033	−0.061**
Stock returns	−0.016	−0.023	−0.031	0.023	0.019
VOL	−0.015	−0.038	−0.001	0.028	−0.050**

*, **, *** denote significance at the 0.10, 0.05, and 0.01 respectively

Panel C, which reports Pearson correlations between CFO characteristics and firm metrics, shows that, broadly speaking, all the correlations are small in magnitude with only a handful of the correlations being statistically significant. More importantly, we find no link between the talent metrics and firm profitability, stock returns and stock volatility. This indicates that CFOs with quality credentials are not matched with more productive firms. One notable observation is that CFOs with accounting expertise are more likely to join smaller firms. We also find that CFOs with more experience have a propensity to join larger, more stable organizations, with lower volatility, which is consistent with the view that executives tend to become more conservative and more risk averse with age, corroborating Wiersema and Bantel's (1992) findings. This relationship also implies that CFOs with longer experience are efficiently matched with larger firms, thereby maximizing the utilization of their abilities by controlling the allocation of more resources. Finally, underperforming firms select more experienced CFOs who presumably are more capable at handling challenging situations to turnaround these organizations.

DOI: 10.1002/smj

RESULTS

Multivariate analysis of CFO compensation premium

Models 1, 4, 7 and 10 of Table 2 present estimates of different specifications of the general model. The coefficients on CFO characteristics support the notion that some CFO qualifications command a pay premium. In particular, the first regression shows that having generalist skills (MBA) adds value to the "strategic" CFO's remuneration package in support of Hypothesis 1. Further, Model 4 documents a positive and significant coefficient on *MBA-Top25* indicating that *elite* MBA qualifications also command a significant pay premium of 16.9 percent, almost triple the premium in Model 1. The findings on the influence of the quality of strategic (MBA) skills on CFO pay are consistent with our Hypothesis 3. Results from unreported regressions, incorporating different combinations of CFO characteristics, further confirm that the *quality* of the MBA degree is very important to the CFO position, garnering the highest pay premium.

The negative and significant coefficient on the *Acct_Expertise* variable, in Model 7, supports our Hypothesis 2 that firms employing "accounting" CFOs provide a lower compensation because of their narrower skill-set and relatively greater availability of CFO candidates with such skills. This finding is also consistent with Beyer *et al.* (1997) and Geletkanycz and Black (2001) that boards recognize that specialized skills at the upper echelon could lead to less than optimal strategic corporate decisions.

In Model 10, we examine the relevance of a non-MBA master's degree to CFO compensation. The value of such qualifications in conducting CFO responsibilities is ambiguous. To the extent that a non-MBA degree reflects specialization, this type of credential can be used to proxy for special training akin to an accounting background. The results in Model 10, where the coefficient for *Non-MBA* is statistically insignificant combined with the fact that the MBA variable is significant further supports the view that strategic skills command a pay premium compared to non-MBA skills. The lack of a pay premium for CFOs with this type of credential adds to the evidence that specialized skills that are *not directly relevant* are less valued by the CFO labor market. This finding supports Hypothesis 4.

Finally, the proxy for CFO experience, *CFO Age*, is consistently positive and significant supporting the notion that CFO experience is relevant to CFO pay, implying that experience has a distinct impact on pay apart from that of educationally-acquired skills.

All control variables are significantly associated with CFO compensation with pay being higher at more profitable firms and at riskier firms, analogous to previous studies examining CEO pay. Also, firm leverage has a negative effect on CFO pay, consistent with the view that leverage serves as a monitoring device, and hence reduces the need for higher pay.

Additional analysis: robustness checks

We conduct a battery of robustness tests to check the validity of our findings. Because insider candidates may differ in qualifications from external candidates, we re-estimate the regressions including a dummy variable, *INS*, which takes a value of 1 if the CFO is an insider and 0 otherwise. This hand-collected variable is available for a subset of the total sample. Corroborating Harris and Helfat (1997) and Murphy and Zábojník (2007), our results in Models 2, 5, 8 and 11 in Table 2 show that external hires receive higher compensation than internal CFOs. Consistent with previous studies on CEO pay, *INS* is significantly negative in all four models for our sample of CFOs.

These regressions also reveal that only the *elite* MBA CFOs command a premium after controlling for the insider status of the CFO. This finding buttresses our support for Hypothesis 3 found earlier. However, as the coefficient for the MBA variable in Model 2 is not significant any more, our support for Hypothesis 1 is reversed. In other words, it is not the breadth of skills from an MBA degree that commands a compensation premium for the "strategic" CFOs, but rather the quality of these skills. Our results imply that *elite* MBA CFOs, who are arguably more scarce than other CFOs, have a stronger bargaining position due to their superior cognitive abilities and training. This finding also supports the notion that elite social/professional networks are considered valuable to organizations, corroborating empirical evidence by Geletkanycz *et al.* (2001).

To ensure that our results are not driven by omitted governance characteristics, we collected data on

DOI: 10.1002/smj

Table 2. Regressions explaining the role of CFO qualifications in determining total CFO compensation

Independent variables	MBA			MBA-Top25			Acct-Expertise			Non-MBA		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
CFO characteristic	0.065**	0.015	0.105**	0.169***	0.105***	0.177***	−0.071*	−0.051	−0.016	0.056	0.083	0.061
	(0.04)	(0.60)	(0.02)	(0.00)	(0.01)	(0.00)	(0.08)	(0.20)	(0.75)	(0.30)	(0.12)	(0.36)
CFO age	0.007**	0.002	0.005	0.008*	0.002	0.006	0.008**	0.002	0.005	0.007**	0.001	0.005
	(0.02)	(0.57)	(0.24)	(0.01)	(0.48)	(0.13)	(0.02)	(0.57)	(0.20)	(0.02)	(0.64)	(0.24)
Size	0.318***	0.338***	0.344***	0.315***	0.334***	0.343	0.317***	0.336***	0.346***	0.320***	0.338***	0.347
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
LEV	−0.004***	−0.004***	−0.004**	−0.004***	−0.005***	−0.004***	−0.004***	−0.004***	−0.004**	−0.004***	−0.004***	−0.004***
	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.03)	(0.00)	(0.00)	(0.00)
ROA	0.005***	0.006***	0.007***	0.005***	0.006***	0.007***	0.005***	0.006***	0.007***	0.005***	0.005***	0.007***
	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
VOL	0.004***	0.003***	0.004	0.004***	0.003**	0.004**	0.004***	0.003**	0.004**	0.004***	0.003**	0.004**
	(0.00)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
INS		−0.415***			−0.404***			−0.416***			−0.417***	
		(0.00)			(0.00)			(0.00)			(0.00)	
# directors			0.001			0.000			0.001			0.001
			(0.95)			(0.98)			(0.97)			(0.97)
% busy board			0.003*			0.003			0.003*			0.003*
			(0.09)			(0.11)			(0.07)			(0.07)
% independent			0.001			0.001			0.001			0.001
			(0.57)			(0.59)			(0.50)			(0.50)
Intercept	4.272***	4.231***	3.741***	4.231***	4.602***	3.678***	4.323***	4.673***	39.79***	4.265***	4.636***	3.738***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
R^2	38.43	43.48	42.86	38.94	43.72	43.27	38.44	43.55	42.53	38.35	43.58	42.58
N	1,417	1,337	889	1,417	1,337	889	1,417	1,337	889	1,417	1,337	889

P-values are in parentheses.
*, **, *** denote significance at the 0.10, 0.05, and 0.01 respectively

DOI: 10.1002/smj

three attributes of corporate boards that may influence executive compensation: (1) the percentage of board members who are independent (*%Independent*), (2) the number of directors on the board (*#Directors*), and (3) the percentage of board members that are busy (*%Busy Board*) where busy is defined, as in prior literature, as those board members that served on four or more boards. Fich and Shivdasani (2006) argue that directors with large external time commitments due to serving on multiple directorships have less time to invest in each board, and hence will provide less valuable advice. We are able to obtain these variables for 803 firms in our sample. The results in Models 3, 6, 9 and 12 in Table 2 show that the busier the directors, the larger the compensation package in support of findings in Fich and Shivdasani (2006). This finding is also consistent with the view that weak board governance structure is associated with higher compensation. We do not find a link between CFO compensation and either the size of the board or the proportion of independent directors. Nonetheless, we still observe similar coefficients on our CFO credential variables in terms of magnitude and significance.[3]

In addition, we utilize different proxies for firm performance (the firm's stock returns for the year prior to the CFO's appointment instead of ROA) and for volatility (the standard deviation of firm's daily stock returns instead of firm-specific volatility). The results are invariant to the use of these variables. We also examine whether the labor market for CFOs differs by firm size by analyzing the regression models for different size terciles separately. Our analysis reveals that both large and small firms value high-quality MBA CFOs and compete for those CFOs by offering comparable (and significant) pay premia. Neither group of firms places a premium on accounting expertise. However, there is an asymmetry in the relevance of CFO experience where small firms offer a significant "experience" premium but the largest firms offer no such premium.[4]

We also examine the long-term relation between CFO pay and CFO characteristics by estimating Equation 1 over the two years following appointment. Confirming earlier results, our findings show a significant pay premia for the years following the appointment with regard to *MBA* and *MBA-Top 25* variables while *Acct-Expertise* is significantly negative in three of the six regressions.

CFO qualifications and components of the compensation package

Next, we consider the implications of CFO qualification on salary and performance pay. The observed pay premium for certain CFOs may be driven by either higher cash compensation (salary), or higher equity-based incentives, or both. Some researchers have argued that cash pay is likely to be more relevant for top executives other than the CEO (Core *et al.*, 2003) and reflects differential skills (Harris and Helfat, 1997). On the other hand, agency theory postulates that firms structure their executive compensation contracts to promote managerial effort and attract talented executives in order to maximize firm value (Jensen and Meckling, 1976). Thus, executives who are perceived to be instrumental in effecting desirable outcomes are more likely to receive performance contingent compensation.

Compensation practices that align interest of organization with executives' can assist the firm in securing a competitive advantage. A key determinant of the effectiveness of compensation contracts to align incentives is the extent to which the executive can exert control over performance outcomes (Miller, Wiseman, and Gomez-Mejia, 2002). Incentive compensation has been linked to the criteria executives use to make strategic decisions (Hoskisson, Hitt, and Hill, 1993). Because incentive pay renders executives' future wealth uncertain, only executives who are confident about their abilities to achieve specified performance metrics will be willing to accept higher levels of such incentives. Whether qualifications affect salary, pay incentives, or both is an empirical issue.

The empirical evidence in Table 3 reveals a positive link between salary and generalist skills.

[3] If the MBA degree serves as a signal that reduces information asymmetry between employer and external hire, then the coefficient for the interaction term between MBA and insider status should be negative. While the sign is as expected, we find that the coefficient for this cross product term is insignificant.

[4] In additional regressions, we estimate the influence of a master's degree and a law degree on CFO compensation separately. Compensation may differ between the two groups because executives with legal education exhibit different decision-making patterns (see Barker and Mueller, 2002; Geletkanycz and Black, 2001). Neither of these two qualifications leads to significant pay premia. Further, we examine the influence of obtaining these degrees from elite universities. Again, we find that neither group commands a significant pay premium. These results indicate that the relevance of the education matters—supporting our hypothesis **H4.**

DOI: 10.1002/smj

Table 3. The role of CFO characteristics on components of compensation

	Ln (salary)				Ln (equity-based compensation)			
Variables	Model 1 MBA	Model 2 MBA-Top25	Model 3 Acct-Expertise	Model 4 Non-MBA	Model 5 MBA	Model 6 MBA-Top25	Model 7 Acct-Expertise	Model 8 Non-MBA
CFO characteristic	0.026**	0.058***	−0.013	0.034	0.0163	0.464***	−0.243	0.097
	(0.04)	(0.00)	(0.43)	(0.11)	(0.31)	(0.01)	(0.15)	(0.66)
CFO age	0.009***	0.009***	0.006***	0.009***	0.009	0.011	0.009	0.009
	(0.00)	(0.00)	(0.00)	(0.00)	(0.51)	(0.42)	(0.48)	(0.49)
Size	0.173***	0.172***	0.173***	0.174***	0.298***	0.287***	0.292***	0.302***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
LEV	−0.001**	−0.001**	−0.001**	−0.001**	−0.007	−0.007	−0.007	−0.007
	(0.04)	(0.03)	(0.04)	(0.04)	(0.21)	(0.20)	(0.24)	(0.22)
ROA	0.000	0.000	0.000	0.000	−0.003	−0.002	−0.003	−0.003
	(0.66)	(0.61)	(0.65)	(0.70)	(0.74)	(0.78)	(0.73)	(0.75)
VOL	0.006	0.001	0.002	0.001	0.004	0.004	0.004	0.004
	(0.30)	(0.27)	(0.58)	(0.29)	(0.51)	(0.48)	(0.55)	(0.52)
Intercept	4.082***	4.067***	4.080***	4.081***	0.970	0.864	1.161	0.945
	(0.00)	(0.00)	(0.00)	(0.00)	(0.45)	(0.50)	(0.37)	(0.47)
R^2	55.87	55.68	57.11	55.43	9.12	9.47	9.21	9.07
N	1,417	1,417	1,417	1,417	1,417	1,417	1,417	1,417

P-values are in parentheses.
*, **, *** denote significance at the 0.10, 0.05, and 0.01 respectively

Specifically, Models 1 and 2 show positive and significant coefficient for *MBA* and *MBA-Top25*. These results corroborate Core *et al.*'s (2003) and Harris and Helfat's (1997) conjectures that salary is the more appropriate measure of skill for positions lower than the CEO. *CFO Age* is consistently positive and significant indicating that older, more experienced, CFOs derive higher salary. Results in Models 5–8 of Table 3 explaining equity-based (or incentive) compensation show that only CFOs with elite MBA are awarded significantly higher equity-based incentives, supporting the view that boards tailor pay contracts to CFOs qualifications. Overall, we find that "strategic" CFOs (with MBA qualification) command a salary premium over non-MBA CFOs, and elite MBAs command both salary and equity-based compensation premia. Designing compensation contracts that are more contingent on performance would lead to higher realized pay if executives make value-enhancing decisions.

CONCLUSIONS AND DISCUSSION

Using actual compensation data and hand-collected credentials information for a large cross-section of CFOs, this is the first study to examine the link between CFO human capital and compensation. Based on a number of robustness checks, and after controlling for insider/outsider status of the CFO and other determinants of compensation, we find that "strategic" CFOs with an *elite* MBA (generalist) consistently command a total compensation premium. On the other hand, "strategic" CFOs with a non-elite MBA degree, "accounting" CFOs with a specialized accounting background, or those with a non-MBA master's degree, even from an elite institution, do not command a total pay premium.

A battery of robustness tests shows that the pay premium for scarce "strategic" human capital and lack of premium for "accounting" CFOs persist (1) in the subsequent years after the appointment, and (2) after the inclusion of board characteristics. With regard to board characteristics, our results also contribute to the corporate governance literature by documenting that CFO pay packages are larger when the board has more busy directors consistent with the view that weaker governance leads to higher executive compensation. We also document that CFOs' qualifications determine the components of their compensation packages, where scarce "strategic" CFOs with *elite* generalist training are awarded both higher salaries and higher levels of equity-based compensation, or higher total compensation. For all MBA CFOs in general (i.e. elite and non-elite), we find that there is only a salary premium over non-MBA CFOs.

Our analyses have the following implications for corporate boards' compensation committees and

DOI: 10.1002/smj

more so, for aspiring C-suite executives. First, firms that hire an "accounting" CFO with specialized skill-set recognize the limitations of these skills and hence, pay a lower compensation package corroborating Beyer *et al.*'s (1997) and Geletkanycz and Black's (2001) findings that boards recognize that specialized (narrow) skills at the upper echelon could lead to less than optimal strategic corporate decisions. This result also implies that narrower functional skills can be obtained from lower level employees, and hence, do not command a premium in the C-suite.

Second, our study shows that the CFO labor market assigns a compensation premium only for elite "strategic" CFOs which can be attributed to the scarcity of their superior cognitive abilities and generalist training, as well as to their elite social/professional networks, both of which are valuable to the hiring firm. Our results support the view that unique complementarities between scarce highly-skilled executives and the firm increase the bargaining power of these executives. When complementarities exist, the value added is larger when the executive's scarce skills are effectively matched to resource-rich firms (Mackey *et al.*, 2014). Because these *elite* MBA CFOs with scarce (and relevant) high-quality strategic human capital can deliver more value to the firm, their bargaining power is higher, thereby leading to higher compensation. From the firms' point of view, they are willing to invest in intangible assets of scarce strategic human capital because they expect this resource to provide more sustained competitive advantage. Our study suggests that aspiring CFOs with an accounting expertise should try to broaden their educational background by also acquiring an elite MBA degree to enhance their compensation potential.

In sum, this study contributes to our knowledge of which type of human capital drives upper echelon executive compensation. These results indicate that board compensation committees place significant importance to the relevance and quality of the top executives' credentials and employ pay as a strategic mechanism to acquire corporate talent for the top management team.

LIMITATIONS AND FUTURE RESEARCH

Not unlike other studies, our research has some limitations that present potential for further fruitful research in this domain. Our inferences rely on the logical assumption that companies, given their needs, make appropriate choices in hiring the best type of CFO ("strategic CFO" or "accounting CFO"). To the extent that top-notch talent and expertise in strategy is scarce and to the extent that all CFO positions increasingly require some measure of strategic perspective, some firms may not be able to attract the best person for the job. One fruitful line of research would be to examine this issue. Our examination of the relationship between CFO educational background and their actual compensation is based on information retrieved from financial databases and hand-collected credentials data. Research using complementary methods (e.g., surveys, field studies and in-depth interviews) that elicit the degree to which the position requires strategic capabilities and the ability of the firm to attract the appropriate match that it needs would be useful.

Another interesting avenue for future research is examining the pros and cons of generalist and technical skills in other C-suite positions. Future research can investigate whether the results in our study are generalizable to other C-suite positions and whether upper echelon teams characterized as generalists are more beneficial to the firm than those with specialized expertise in their own individual areas. Cultivating an ecosystem of talent is important to the success of the organization and can be a key component of the firm's succession plan. Such research would help us understand what types of top management teams are most valuable to the corporation. It would also be fruitful to examine whether the value of generalist versus specialist skills vary by industry-type. Our paper opens up these new horizons for future research.

ACKNOWLEDGMENTS

We are grateful to Constance Helfat (editor), Donald Hambrick (Penn State), and two anonymous reviewers for their insightful guidance and encouragement.

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DOI: 10.1002/smj