Firm-Manager Matching and the Costs and Benefits of Hiring an Accounting Expert CFO[*]

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Abstract

We examine the firm and industry characteristics associated with hiring accounting expert CFOs to provide evidence on the costs and benefits to firms that hire these CFOs. Our findings suggest that acquiring accounting expertise requires a costly tradeoff in terms of acquiring other skills, including operational knowledge and strategic expertise. We find that this tradeoff is reflected in firms' hiring decisions ex ante and affects the structure of the top management team ex post. The study contributes to the literature on firm-manager matching and complements prior work that studies the beneficial effects of CFO accounting expertise on reporting outcomes.

1.   Introduction

We examine firms' hiring decisions to shed light on the costs and benefits of CFOs' accounting expertise. Because acquiring expertise requires a certain level of human capital investment, CFOs with greater accounting expertise are likely to trade off educational and career experiences that would build expertise in other areas. Given that the CFO role is multi-faceted and has evolved to include many operational responsibilities, CFOs with greater accounting expertise are likely less effective in managing these non-accounting responsibilities. We expect that firms recognize the tradeoffs in CFOs' skill sets and hire CFOs based on the needs of the firm. Thus, by examining the characteristics of firms that hire accounting expert CFOs (i.e., the firm-manager matching process), we provide evidence on the costs and benefits of CFOs' accounting expertise.[1]

Our approach of examining the firm-manager matching process assumes that the propensity to hire a CFO reflects the costs and benefits of her expertise to the firm and that, on average, firms correctly anticipate these costs and benefits. Thus, firm and industry characteristics that increase the propensity to hire an accounting expert CFO likely correspond to greater *benefits* of CFO accounting expertise. In contrast, firm and industry characteristics that decrease the propensity to hire an accounting expert CFO likely correspond to greater *costs* of CFO accounting expertise. If manager characteristics do not matter to firm outcomes, we should observe no relation between firm characteristics and the expertise of the managers that they hire. Similarly, if the executive labor market is sufficiently illiquid to prevent efficient matching between firms and managers, we also would not observe any relation between firm and manager characteristics.

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[1] It is the deficiency in other skills (e.g., general management skills) due to a manager's investment in accounting expertise, not accounting expertise itself, that is likely to be costly to the firm.

Our study differs from prior studies in two important ways. First, prior research primarily focuses on the *benefits* of CFOs' accounting expertise—for example, the positive effect of CFOs' accounting expertise on firms' financial reporting outcomes (Li et al., 2010; Aier et al., 2005). In contrast, we consider the potential *costs* of CFOs' accounting expertise that stem from the tradeoffs involved in acquiring such expertise.

Second, we focus on the *determinants* of firms' hiring decisions, while prior research primarily focuses on the *effects* of CFOs' accounting expertise on firm outcomes.[2] We do not associate firm outcomes with manager characteristics for several reasons. Firm outcomes are noisy proxies for the costs or benefits of a *specific* manager's skill set, particularly to the extent that firms compensate for any deficiencies in a manager's skill set—for example, by hiring other executives with skill sets that mitigate the effects of the manager's shortcomings (a possibility we consider in our analysis). Further, efficient matching between firms and managers could lead to no observed effect on firm outcomes, which would not necessarily suggest that there are no costs and benefits associated with CFO accounting expertise. For example, a firm with greater financial reporting complexity might be more likely to have accounting restatements but also more likely to hire an accounting expert CFO. Thus, with efficient matching between firms and managers, one might not observe an association between hiring an accounting expert CFO and accounting restatements because the negative effect of accounting expertise on restatements will be offset by the positive effect of reporting complexity on restatements.

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[2] Our approach distinguishes our paper from a related paper by Hoitash et al. (2016). They recognize the multi-dimensional nature of the CFO position and that hiring an accounting expert CFO may involve costs to the firm. However, their approach is to examine the association between having a CFO with an accounting background and several firm outcomes (e.g., external financing, cash holdings etc.), which they attribute to accountant CFOs' tendency toward risk aversion. Thus, they take the perspective that a managerial characteristic—risk aversion— is associated with accounting expertise and has (potentially unintended) consequences on firm outcomes. In contrast, we take the perspective that firms recognize the strengths and weaknesses of different CFOs' skill sets and efficiently match their needs to the appropriate CFO on average.

Our analysis is based on a sample of over 8,000 CFO hiring events at U.S. public firms with employment hire dates between January 1, 2000 and December 31, 2013 as reported on BoardEx. We proxy for a CFO's accounting expertise by identifying those CFOs with a CPA designation (hereafter "CPA CFOs") on the basis that this proxy is easy to identify in a large sample and is an objective measure of accounting expertise. Although the definition likely excludes some accounting expert CFOs who do not hold a CPA license, it is unlikely to include CFOs who are not accounting experts, because the education and experience requirements necessary to become a CPA are extensive.

We begin by providing evidence that CPA CFOs trade off valuable educational and career experiences to develop accounting expertise. We find that, relative to non-CPA CFOs, CPA CFOs 1) are less likely to have a MBA, 2) are less likely to have prior finance experience, 3) have fewer years of their employment history working in a U.S. public company, and 4) are less likely to sit on the board of a public company. These findings are consistent with the idea that acquiring accounting expertise requires a tradeoff in terms of acquiring other skills and knowledge that are valuable for CFOs of public companies.

Our main analysis examines the costs and benefits of accounting expertise by modeling the firm's decision to hire a CPA CFO. Consistent with the systematic matching of firm and manager characteristics, we find that CPA CFOs are more likely to be hired at firms for which the net benefits of accounting expertise are higher. Specifically, firms are more likely to hire a CPA CFO when accounting is more complex and accounting regulatory requirements are more demanding. However, we expect that CPA CFOs are less effective at developing and implementing the strategies of the firm, managing communications with the capital markets (i.e., investor relations), and managing complex operations. Consistent with this, we find that firms are less likely to hire a CPA CFO when they compete more on product differentiation, have more geographic segments, are in financial distress, make

greater investments in capital and research and development, or when analyst following is higher. The findings are economically significant—the estimated probability of hiring a CPA CFO changes by 23 (13) percentage points based on movement across the interquartile range of all cost (benefit) variables.

We also consider how the expertise of other members of the top management team affects firms' hiring decisions. We find that firms with a top manager holding an accounting-related job title are less likely to hire a CPA CFO. Similarly, we find some evidence that firms with an existing Chief Operating Officer (COO) are more likely to hire a CPA CFO. To the extent a COO position reduces the breadth of a CFO's job responsibilities, hiring a CPA CFO is less costly for firms with existing COO positions.

Our analysis of firm-manager matching uses several proxies for firm and industry characteristics that could affect the firm's hiring decision. An important advantage of this approach is that it minimizes the chance that a single correlated omitted variable could account for the full set of results. Nonetheless, we recognize that our proxies for the demand for accounting and non-accounting related expertise could be noisy and that our analysis relies on variation in the independent variables that is not as-if random. Moreover, there is measurement error in classifying CFOs' expertise based on the CPA designation. Thus, we conduct two series of analyses to validate our interpretation of the main results.

The first set of analyses examines the robustness of our main results to various forms of measurement error. For instance, we investigate the underlying assumption in the main analysis that firm characteristics *prior* to the hiring event represent the needs of the firm *going forward*. We expect and find evidence that when the hiring decision occurs in a relatively more stable environment, the firm characteristics prior to the hiring event represent better proxies for the needs to which a manager is matched, thus improving the predictive strength of our determinants model. Specifically, we find that the matching model is *more*

predictive (has a higher Pseudo R^2) for hiring events that are associated with *less* instability (e.g., when the hiring event is not accompanied by an operating shock). This result and those of other robustness analyses provide confirming evidence of systematic matching of firms and managers based on the importance of accounting and non-accounting expertise.

Absent exogenous variation in the characteristics we use to model the hiring outcome, it is possible that some other unknown factors could bias one or more coefficients in the determinants model. Therefore, our second set of additional analyses tests several implications of our main hypothesis to further validate our interpretation of the main findings. First, we examine whether significant changes in the quality of a firm-manager match are associated with CFO turnover—i.e., whether *mismatching* leads to CFO turnover. To proxy for the quality of the firm-manager match, we use our determinants model to generate predicted values of the CPA variable for every year between the year of hire and each subsequent year of the CFO's tenure. Large negative (positive) changes in predicted values of CPA correspond to substantially worse matching if the hired CFO was a CPA (non-CPA). We find evidence that high levels of mismatching are associated with CFO turnover.

Second, the main analysis provides evidence that the organizational characteristics of the firm affect the type of CFO hired. As a corollary, firms could change their organizational structure ex post to compensate for any tradeoffs they make when hiring a CFO. Consistent with this idea, we analyze how *changes* in accounting expertise in the CFO position are associated with *changes* in the presence of an accounting related position or a COO position following a CFO appointment. We find evidence that firms hire other top management team members with complementary skills to compensate for deficiencies in CFOs' skill sets. This finding suggests that organizational design decisions are endogenous to the specific skill sets of managers and further underscores the empirical challenges associated with identifying the effects of a specific manager on firm outcomes.

Third, we examine the likelihood that a CPA CFO moves into a CEO position, under the presumption that the CEO position requires greater non-accounting related expertise and less accounting related expertise. Thus, rather than relying on proxies to capture firms' needs for accounting or non-accounting related expertise, we rely on variation in the needs associated with a particular managerial position—the CEO position. We find that CPA CFOs are less likely to be promoted to the CEO position either within the firm or outside the firm in the five years following their CFO appointment. This result is consistent with the idea that CPA CFOs are less likely to possess the general management and operational skill sets that are valuable for the CEO position and boards match firm needs for a particular position with the skills of the manager.

Finally, we consider the possibility that supply-side, rather than demand-side, factors drive our results. Rather than firms demanding managers with different backgrounds, potential CFO candidates may select into firms based on their preferences for certain firm characteristics.[3] One preference potentially common to accounting experts is risk aversion (e.g., Hoitash et al., 2016). However, it is not clear how risk aversion provides a viable alternative interpretation of our results given that many of the firm characteristics associated with hiring a CPA CFO have little apparent relationship with the firm's risk (e.g., gross margin or analyst following). In addition, we find no evidence that CPA CFOs earn a greater proportion of their compensation from a fixed component (i.e., salary), a result that is inconsistent with CPA CFOs exhibiting higher levels of risk aversion.

Our study provides several important insights. We present an alternative empirical approach to provide evidence of costs and benefits of accounting expertise. While prior literature examines the *effect* of managerial characteristics on firm outcomes (Custodio and

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[3] Managers could select into particular firms because of their abilities to perform the necessary job responsibilities of that particular CFO position. For example, accounting expert managers could choose not to work in CFO roles that require extensive operational skills because they are aware of their limited expertise in this area. This explanation would be consistent with our hypothesis.

Metzger, 2014; Malmendier et al., 2011; Bamber et al., 2010; Bertrand and Schoar, 2005), our evidence highlights how endogenous firm-manager matching can make it difficult to interpret the results of prior studies. Moreover, our findings demonstrate that although there are benefits to accounting expertise, this expertise entails costly tradeoffs to firms. In particular, accounting expert CFOs are less likely to match with firms that have higher levels of operational complexity or greater needs for general management experience.[4] Finally, we find that the structure of the top management team (namely, the presence of accounting or operational positions) can affect firms' CFO hiring decisions ex ante and, in turn, these hiring decisions can affect the structure of the top management team ex post.

Overall, our findings speak to the importance of accounting expertise on the top management team. The evidence suggests the likelihood of hiring a CPA CFO is highly sensitive to variation in the costs and benefits of accounting expertise. These results support the view that accounting expertise is a carefully weighed attribute on the top management team, even if this expertise entails certain tradeoffs.

2.   Hypothesis Development

2.1   The benefits and costs of hiring a CFO with accounting expertise

The CFO position is multi-dimensional. In addition to their responsibility over traditional financial reporting and treasury functions, CFOs also increasingly oversee a variety of other firm activities (Consero, 2013; Groysberg, 2011; Favaro, 2001). For example, although setting the strategic vision of the organization is largely the purview of the CEO, the

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[4] These results may help to explain CFO hiring trends over time. As discussed further below, we observe a general decline in CPAs being hired as CFOs since the mid-2000s—a period of time that has seen the role of the CFO expand to include more general management and operational responsibilities. We also observe that firms in financial distress are less likely to hire CPA CFOs, which is consistent with the decline in the hiring of CPA CFOs during the financial crisis.

CFO is expected to provide insight and analysis to support the CEO's strategic planning.[5] Such analysis might involve guiding evaluations of merger and acquisition decisions, developing business partnerships or alliances, and evaluating potential expansion plans. CFOs are also involved in communications with external stakeholders, playing a prominent role in building and maintaining relationships with the investment community and media (Favaro, 2001). [6] Further, CFOs are increasingly given more general management responsibilities, such as oversight over the information technology (IT), property, and logistic functions of the organization (Ernst & Young, 2010).

If managers' skills and prior experiences are important to fulfill the range of CFO job responsibilities, then a key function of boards is to "match" the needs of the firm with the appropriate CFO. This matching of managerial skill set with the needs of the firm is the focus of the literature on fit/refit theory (e.g., Chen and Hambrick, 2012; Finkelstein et al., 2009). For example, Chen and Hambrick (2012) argue that the extent to which a new CEO benefits a firm depends upon the degree to which she fits the firm's situation relative to the previous CEO. However, certain frictions can undermine efficient firm-manager matching. For example, it is possible that the executive labor market is relatively illiquid, which would restrict efficient matching between firms and managers. If such constraints are sufficiently binding, then systematic matching between firms and managers may not occur. Similarly, systematic matching may not occur if there is uncertainty about firm needs or potential managers' abilities. However, if efficient matching does occur, at least on average, a firm's hiring decision should reflect the costs and benefits to a firm of a manager's skill set. That is,

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[5] For example, in a recent survey of Fortune 1000 CFOs, 81% indicated that their companies viewed the finance function as a "strategic business partner" (Consero, 2013). In another survey of CFOs, 75% indicated that they spend 50% or more of their time on strategic aspects of their role (Ernst & Young, 2010).

[6] The role of CFOs in investor relations is apparent given their prominent role in corporate conference calls—Li et al. (2014) find that comments by the CFO make up 33% of the text spoken in their sample of conference calls (relative to the 47% of text spoken by the CEO). In addition, based on a 2012 survey of 736 investor relations executives, the National Investor Relations Institute (NIRI) reports that 65 percent of investor relations managers report to the CFO at their company.

the probability a firm hires an accounting expert CFO should be increasing (decreasing) in the benefits (costs) to the firm of having greater accounting expertise on the senior management team.

Several prior studies examine the *benefits* of hiring accounting expert CFOs and generally find that these CFOs more effectively manage the accounting-related responsibilities of their position, such as monitoring financial reporting and internal control functions (e.g., Li et al., 2010; Aier et al., 2005). For example, Li et al. (2010) show that firms are more likely to hire a CFO with financial reporting expertise after disclosing ineffective internal controls. They also show that improving accounting expertise in the CFO position increases the likelihood of remediating internal control deficiencies. In addition, DeFond et al. (2005) find that the stock market reacts positively to hiring an accounting expert to an audit committee but not to hiring a non-accounting financial expert, suggesting that accounting expertise is value-enhancing in certain circumstances.

Less well understood are the *costs*, if any, of hiring a CFO who is an accounting expert. We predict that investments made to develop accounting expertise likely lead managers to tradeoff educational and work experience in roles that build expertise important to executing non-accounting functions of the CFO. Prior research provides some evidence consistent with this tradeoff. For example, in their sample of CFOs, Ge et al. (2011) report a negative correlation between having a CPA and having an MBA. Having a more general educational background (such as an MBA) or work experience as the head of a business unit or geographic segment could provide the CFO with the familiarity and expertise necessary to help manage operational responsibilities (e.g., managing the supply chain). Similarly, backgrounds in investment banking, equity research, or asset management can also be valuable; serving investor constituencies requires extensive knowledge of them—the information they demand and the incentives they face. Likewise, the need to contribute to

strategic plans requires expertise that can accrue from positions in corporate business development, M&A structuring at investment banks, or private equity. The investments necessary to acquire accounting expertise plausibly come at the expense of these experiences.[7]

Nonetheless, whether accounting expert CFOs are less effective in managing non-accounting functions, on average, is an empirical question. Even if accounting expert CFOs lack experience in operational capacities, investment banking, etc., they are likely to be supported by staff who do have many of these non-accounting experiences. Further, an accounting expert CFO could have developed the ability to manage non-accounting functions while working in accounting positions—for example, developing the ability to manage staff and client relationships as a partner at a public accounting firm. These factors could, at least in part, mitigate the costs to the firm of hiring an accounting expert CFO.

Our main hypothesis, in alternative form, is as follows:

H1: Hiring an accounting expert CFO entails trading off other forms of expertise that firms consider valuable in the CFO position.

Given the potential benefits and costs of accounting expertise, efficient firm-manager matching implies the probability of hiring an accounting expert CFO should be increasing in the firm's needs for accounting expertise and decreasing in the firm's needs for non-accounting expertise. We form four proxies that we expect to capture firms' needs for CFO accounting expertise. Precise variable definitions are provided in Appendix A. First, we examine the initial period after the Sarbanes Oxley Act (SOX) became effective to capture the need for accounting expertise to comply with new regulatory requirements (e.g., Section 404 on internal control disclosures). Second, we examine industry-level accounting

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[7] Brochet and Welch (2011) find that CFOs with "transaction experience" (e.g., experience in investment banking, private equity, venture capital, and management consulting) report goodwill that is more value-relevant, consistent with this type of experience resulting in higher quality valuations in an acquisition. We expect accounting expert CFOs are less likely to have this type of experience.

complexity using the average number of restatements in the firm's industry group preceding the CFO hire to examine across-industry variation in the demand for accounting expertise, based on evidence that accounting complexity increases the likelihood of restatements (Peterson, 2012). Third, we expect that firms with higher levels of accruals (unsigned) require greater accounting expertise to manage the financial reporting function, as accruals often require substantial judgment and estimation. Finally, we measure whether the firm disclosed an internal control weakness in the year prior to hiring a new CFO, as prior literature suggests that firms have strong incentives to hire CFOs with accounting expertise in the presence of financial reporting problems (Li et al., 2010). Collectively, these proxies allow us to examine how both firm- and industry-level variation in the expected benefits of accounting expertise explain CFO hiring decisions.

We use several measures to proxy for firms' needs for non-accounting expertise in the CFO position. First, we examine a firm's needs for high-quality strategic decision-making using M&A activity and gross margin, a measure of product differentiation. Mergers and acquisitions are an important mechanism through which firms implement their strategic direction (e.g., Hoberg and Phillips, 2010); thus, firms undergoing frequent M&A activity likely value CFOs with expertise in this area. Greater reliance on product differentiation also requires greater strategy-related expertise in developing business partnerships and creating effective marketing strategies.

Second, we use analyst following to proxy for a firm's need for investor relations expertise. Firms with higher analyst following likely invest greater resources in managing communications with the capital markets, and thus likely require a CFO with greater expertise in investor relations.

Finally, we use three measures to capture firms' needs for general management experience: number of geographic segments, likelihood of financial distress, and total

investment. CFOs with more general business experience are more likely to have the management skills necessary to effectively manage functions such as IT and logistics across geographically dispersed operations. Similarly, firms that are in financial distress likely require general management experience to navigate the significant business changes that are required to turn around a company.[8] We also consider the overall level of investment in capital expenditures and research and development, as these investment decisions require strategic and operational evaluation prior to implementation.

2.2   *Composition of the management team and CFO job responsibilities*

Our main hypothesis assumes that the breadth of a CFO's job responsibilities is similar across organizations. However, many non-accounting related job responsibilities of the CFO likely overlap with those of other top-level executives—in other words, firm-level decisions are a joint effort by the top management team (Hambrick and Mason, 1984). It is plausible then that the composition of the top management team and the characteristics of its executives are jointly determined—that is, the composition of the top management team can affect the decision of who to hire (i.e., which managerial skill sets are important in the hiring decision), and these hiring decisions can in turn affect the composition of the top management team.

As part of our main analysis, we explore two potential effects that could influence a firm's decision to hire an accounting expert CFO. First, hiring a CFO with accounting expertise might be less important when there is already accounting expertise within the management team. For example, if a firm already has a high-level accounting position such as Chief Accounting Officer, then it is possible that the CFO has less need to be actively involved in the accounting functions at the firm. Additionally, we examine whether a CEO's

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[8] Consistent with this conjecture, Custodio et al. (2013) find that firms in financial distress pay more for "generalist" CEOs, suggesting that general management experience is more desirable when firms are in financial distress.

accounting expertise plays a role in deciding whether to hire an accounting expert CFO. If the CEO is an accounting expert, the accounting expertise of the CFO might be less important. Therefore, we conjecture that firms are less likely to hire CFOs with accounting expertise when they have existing accounting expertise in the top management team. Second, we consider the impact of having a Chief Operating Officer (COO) position on the top management team. We expect that when a firm has a COO to manage non-accounting responsibilities, the scope of the CFO's responsibilities is likely to be more focused on financial reporting and related activities; therefore, firms with COOs will be more likely to hire CFOs with accounting expertise, all else equal.

3.   Data and sample selection

Our primary source of information on CFOs is BoardEx, an international data provider that uses public disclosures to track executives' educational and employment backgrounds. We use the BoardEx employment file to select a sample of CFO hires at publicly traded U.S. companies with employment hire dates between January 1, 2000 and December 31, 2013.[9] We identify CFOs by searching for job titles that include the term "CFO" or "Chief Financial Officer" but do not include the terms "Division", "Region", "Co-CFO", "Deputy CFO", or "CEO." We also remove firm-years in which the firm has multiple CFO hires in the same year. Finally, we require that each executive in the sample remains employed by the company in the CFO position for a full fiscal year after the hire date (hereafter the "year after hire"). We impose these restrictions to ensure the sample consists of corporate-level CFOs who were neither subordinate to other executives in the finance

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[9] For approximately 24% of our sample, BoardEx specifies the date of hire at a month-year or year level, not at the daily level. For these observations, we assume that the executive was hired at the end of the period for which the hire date is defined. For example, if BoardEx lists the hire date as October 2003, we assume a hire date of October 31, 2003, and if the hire date is listed as 2003, we assume that the hire date is December 31, 2003.

function nor serving on an interim basis. As discussed previously, we proxy for accounting expertise by identifying CFOs with a CPA designation (CPA CFOs).[10,11]

Table 1, Panel A summarizes the sample selection procedure. In addition to the sample selection criteria discussed above, we require observations to have data on total assets in Compustat (in the year after hire). Our selection criteria yield a final sample of 8,497 CFO hire observations.[12] Due to limited availability of data for control variables and certain dependent variables, however, the number of observations is generally lower in our tests.[13]

In Panel B of Table 1, we present an overview of our sample composition over the sample period. Our sample consists of an average of 606 CFO hires per year. On average, 49.6 percent of CFOs hold a CPA. The proportion of these CFOs holding a CPA increased gradually from 42.7 percent to 54.8 percent from 2000 until 2006, after which the proportion of CFOs hired with a CPA declined to 46.9 percent in 2013.

4. Empirical Results

4.1 CFO characteristics and background

Table 2 presents descriptive statistics of CFO characteristics for our sample of CFO hires and the variables used in our main tests, which we define in Appendix A. We present

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[10] Although specific licensing requirements vary by state, most states require a four-year bachelor degree in business or accounting and 150 credit hours, passing the four-part Uniform CPA Exam, and at least one year of relevant work experience supervised by a verified CPA or equivalent.

[11] Prior literature has also used experience at public accounting firms to capture accounting expertise (e.g., Li et al., 2010). We choose to measure accounting expertise using the CPA designation to ensure we do not miss accounting-based experience at non-Big 4 firms as well as to avoid classifying managers with experience in non-accounting related functions at the Big 4 firms (e.g., consulting) as having accounting expertise. In addition, given the heterogeneous nature of job titles and responsibilities across organizations, identifying accounting expertise based on prior work experience is likely to introduce more noise into our proxy.

[12] We use hiring event data rather than firm-manager-year panel data because we do not necessarily expect the firm's needs to remain constant over the entire length of the manager's tenure with the firm (i.e., the quality of the match may change over time). Assuming there is some adjustment cost associated with executive turnover, turnover initiated by the firm would only occur once the cost of a poor quality fit is greater than the adjustment cost. Thus, a hiring model should reflect closer matching of firm and manager than a panel model. In Section 4.4.1, we explore the possibility that a poor quality fit leads to executive turnover.

[13] Specifically, in addition to financial data from Compustat, the calculation of some variables requires returns data from CRSP, M&A deal information from Thomson SDC Platinum, analyst coverage from I/B/E/S, internal control and restatement data from Audit Analytics, compensation data from Execucomp, and other executive related information from BoardEx. We discuss measurement of these variables further in Section 4.

these statistics for the full sample (Panel A) and then separately for CPA CFO hires and non-CPA CFO hires (Panel B). Of the CFOs in our sample, 38% have an MBA degree (*MBA*), 10% have finance backgrounds (*FIN*), defined as experience in an investment bank or holding a CFA designation, and 34% have prior experience as a CFO at a U.S. public company (*PriorCFO*).[14] In addition, the average proportion of the CFO's prior years of experience (as listed on BoardEx) at a U.S. public company is 34% (*Prop Public US Exp*); 16% of the CFOs held a board seat of a public company at the hire date (*Board Seat at Hire Date*); and approximately 60% were hired externally (*ExtHire*). The average age (*Age*) of CFOs in our sample is 48, and for CFOs that turnover during our sample period, the average tenure (*Tenure*) is 4 years.

We provide evidence of potentially important tradeoffs in the backgrounds and skill sets of CFOs in Panel B of Table 2 and Table 3. Panel B of Table 2 shows that, as expected, CPA CFOs are significantly less likely to have an MBA degree or prior finance experience (p-value < 0.01). For example, 47% of non-CPA CFOs hold an MBA degree, versus only 29% for CPA CFOs. The proportion of the CFO's prior years of experience (as listed on BoardEx) that was spent at a U.S. public company is significantly less for CPA CFOs than non-CPA CFOs. We also find that CPA CFOs are less likely to hold a board seat at a public company than non-CPA CFOs at the time of hire (p-value < 0.01), consistent with the notion that CPA CFOs might lack the general operational and management expertise that is desirable for a board position. In contrast, Table 3 shows that CFOs with an MBA degree typically have more general management and finance experience, as illustrated by the

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[14] We determine whether a CFO has experience in investment banking based on whether the CFO has been employed by an investment bank using a list compiled with data from Thomson SDC Platinum. Specifically, for each year from 1962 (the earliest year of data availability on SDC) through 2008, we obtain the names of the top 50 investment banks ranked by mergers and acquisitions, debt issuance, or equity issuance fees. We then match by hand the investment bank names obtained from this step to those listed in the BoardEx employment file to capture all variations of the investment bank names (including subsidiary names) listed in BoardEx. The final list includes 2,165 separate investment bank names.

significantly positive correlations between MBA, finance experience, prior U.S. public company, and board experience. Overall, the evidence suggests that although CPA CFOs are likely to possess greater financial reporting expertise, this expertise is typically at the expense of finance and general operational and managerial experience.[15]

4.2   Determinants of hiring a CPA CFO

We expect to observe systematic associations between firm characteristics that represent the expected costs and benefits of CFOs' accounting expertise and the type of CFO the firm hires. We test our hypotheses by examining the determinants of hiring a CPA CFO using the following logistic regression model where *CPA* is equal to one if the newly hired CFO has received a CPA (or international equivalent) and zero otherwise:

$$Pr(CPA = 1) = \gamma_0 + \gamma_1 SOX_t + \gamma_2 IndComplexity_{t-3,t-1} + \gamma_3 |Accruals_{t-1}| + \gamma_4 ICW_{t-1} + \gamma_5 MA_{t-1} + \gamma_6 IndMA_{t-1} + \gamma_7 GrossMargin_{t-1} + \gamma_8 IndGrossMargin_{t-1} + \gamma_9 GeoSeg_{t-1} + \gamma_{10} Distress_{t-1} + \gamma_{11} Investment_{t-1} + \gamma_{12} AnalystFollow_{t-1} + \gamma_{13} Acctg_{t-1} + \gamma_{14} CEOCPA_{t-1} + \gamma_{15} COO_{t-1} + \gamma_{16} ROA_{t-1} + \gamma_{17} BM_{t-1} + \gamma_{18} Lev_{t-1} + \gamma_{19} Ln(MVE)_{t-1} + \varepsilon \quad (1)$$

As discussed in Section 2, Equation (1) includes four variables that proxy for the expected benefits of accounting expertise. We select these proxies to capture time-series and cross-sectional variation in the expected benefits of accounting expertise at the firm- and industry-level. We expect that the incentive to hire a CPA CFO is stronger during the initial adoption years of the Sarbanes-Oxley Act (SOX), as firms were required to comply with the new internal control disclosure requirements under Section 404 of SOX that became effective in 2004. To examine this effect, we include an indicator variable equal to one for CFO hires that occurred between 2004 and 2006, and zero otherwise (*SOX*).[16] We measure industry-level accounting complexity using the average number of restatements unrelated to fraud in

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[15] Table 3 also reveals expected associations between other executive characteristics and background variables. For instance, CFO age is positively correlated with prior CFO experience, the likelihood of holding a board seat at a public company at the time of hire, and being an external hire at the sample firm.

[16] Results are robust to alternative definitions for the time period of the SOX variable (i.e., 2003-2006; 2004-2006; 2003-2007).

the firm's industry group in the three years prior to the CFO hire year (*IndComplexity*).[17] Industries with complex accounting practices are likely to experience more restatements on average (Peterson, 2012). We use the absolute level of accruals scaled by total assets (|*Accruals*|) as a firm-specific measure of accounting complexity. Finally, we include a measure of internal control quality using an indicator variable for whether the firm disclosed an internal control weakness in the fiscal year prior to the hire year (*ICW*). We expect that the benefits of hiring a CPA CFO are increasing in these factors (i.e., γ_1 through $\gamma_4 > 0$).

We include eight variables to proxy for the expected costs of accounting expertise. We take the natural log of one plus the number of acquisitions a firm made in the year prior to the CFO's hire date to capture a firm's demand for strategic decision-making in mergers and acquisitions (*MA*). We also include the variable *IndMA*, calculated as the natural log of one plus the total number of acquisitions of an industry in the year prior to the CFO's hire date, to capture any demand for strategic decision-making arising from M&A activity at the industry-level (e.g., due to M&A waves). We use a firm's gross margin in the year prior to the CFO's hire year to proxy for the firm's strategy type (e.g., cost leader versus product differentiator) (*GrossMargin*). These strategies likely vary significantly across industries; thus we also include the industry median gross margin (*IndGrossMargin*). Analyst following (*AnalystFollow*) is used to measure a firm's need for a CFO's ability to manage investor relations. We use the number of geographic segments (*GeoSeg*), the likelihood of financial distress (*Distress*), and total investment (*Investment*) to capture a firm's need for a CFO with general management experience. These variables are all increasing in the expected costs of accounting expertise, so we expect their coefficients to be negative (i.e., γ_5 through $\gamma_{12} < 0$).

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[17] We use three-digit SIC codes to define industry groups when calculating industry-level independent variables. Results are robust to using two-digit SIC groups and Fama-French 12 industry classifications.

We also examine whether a firm's CFO hiring decision is a function of the composition and characteristics of the top management team. First, we examine whether the accounting expertise of the existing management team affects the decision to hire a CPA CFO. We include two variables to capture the level of accounting expertise at the firm at the time of the CFO's hire: *Acctg,* which equals one if BoardEx indicates the employment of an individual with a job description including the words "Accounting" or "Controller" (e.g., Chief Accounting Officer, Principal Accounting Officer) at the firm as of the hire date of the CFO, and zero otherwise; and *CEOCPA,* which equals one if the CEO as of the CFO's hire date has a CPA and zero otherwise. Second, we examine whether the presence of a Chief Operating Officer (COO) influences the decision to hire a CPA CFO; *COO* is an indicator variable equal to one if the firm has a COO (or equivalent) at the time of hire. We expect that when a firm has a COO to manage non-accounting responsibilities, the firm will be more likely to hire CFOs with accounting expertise, all else equal.

Finally, we include several variables to control for firm characteristics that potentially influence the hiring decision: return on assets (*ROA*) to control for performance, book-to-market ratio (*BM*) to control for growth prospects, leverage (*Lev*) to control for financial structure, and the natural log of market value of equity (*Ln(MVE)*) to control for firm size. Descriptive statistics of our determinants variables are reported in Table 2.[18]

Panel A of Table 4 provides the coefficient estimates of several variants of Equation (1). Panel B presents the average marginal effects. Columns (1) and (2) present results for specifications including only the variables that capture firms' demand for accounting and non-accounting expertise, respectively. We combine these specifications in Column (3) and add the three variables related to the compensating effects of other top management team

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[18] We do not control for the CPA status of the prior CFO, as doing so could control away the predicted effects if firm and industry characteristics are stable over time.

members' backgrounds in Column (4). Finally, we present the results of our full specification, including the controls for firm characteristics, in Column (5).

Column (1) shows that all the coefficients on the variables that capture firms' demand for accounting expertise are significantly positive, with the exception of the coefficient on |*Accruals*|.[19] Column (2) shows that the coefficients on five of the eight variables that capture firms' demand for non-accounting roles of the CFO position are significantly negative. Firms are less likely to hire CPA CFOs when needs are greater for strategy expertise (*GrossMargin*), investor relation activities (*AnalystFollow*), and general management experience (*GeoSeg*, *Distress*, *Investment*). The results remain similar in Column (3) and Column (4). Once we include controls for other firm characteristics in Column (5), the coefficient on *IndGrossMargin* becomes significantly negative; however, the coefficients on *ICW* and *AnalystFollow* become insignificant. The latter result is likely due to the high correlation between analyst following and firm size; firms with large market capitalization generally have a greater need to cultivate relationships with Wall Street.[20] Overall, the results in Table 4 are consistent with H1; firms are significantly more likely to hire CPA CFOs when the benefits of having accounting expertise in the executive team are high and less likely to hire CPA CFOs when other, non-accounting related expertise is more important.

The coefficients on the variables related to the management team are also broadly consistent with our expectations. We find that the presence of an accounting-focused position on the management team lowers the probability of hiring a CPA CFO and that the existence of a COO position increases the probability of hiring a CPA CFO. Interestingly, however, the

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[19] While the coefficient on |*Accruals*| is not significant, further investigation reveals that there are some observations with extreme values of |*Accruals*| (even after winsorizing the variable at the 1% and 99% level). These extreme observations are generally correlated with extreme negative operating performance (e.g., large restructuring charges). When we separately control for these extreme observations, the coefficient on |*Accruals*| is significantly positive, consistent with firms with more complex accounting hiring CPA CFOs.

[20] In particular, when we exclude firm size from the model in Column (5), the coefficient on *AnalystFollow* is significantly negative with a t-statistic of -4.76 (p-value < 0.01).

presence of a CEO with a CPA *increases* the probability of hiring a CPA CFO. Although this result is contrary to the notion that firms hire accounting expert CFOs when they lack this expertise in their top management team, to the extent the CEO plays a role in hiring the CFO, the positive association is consistent with social psychology research that suggests biases toward demographically similar individuals (Westphal and Zajac, 1995). It is also possible that the existence of a CEO CPA captures other reasons accounting expertise is important on the top management team. Finally, we find that larger firms and firms with fewer growth opportunities (i.e., higher book-to-market ratio) are significantly less likely to hire CPA CFOs.

The average marginal effects reported in Panel B of Table 4 suggest the findings are economically significant. For example, firms are 3.3% more likely to hire a CPA CFO during the initial SOX implementation years and 14.8% less likely to hire a CPA CFO when they are in financial distress (Column (5)). These effects are considerable given that the average likelihood of hiring a CPA CFO is 49.6%. To gauge the joint significance of the cost variables, we calculate the difference between the probability of hiring a CPA when these variables are high versus low. High (low) corresponds to the 75th (25th) percentiles of the distributions for continuous variables and 1 (0) for indicator variables. We keep the benefit variables, firm controls, *CEOCPA*, *COO*, and *Acctg* at their mean values. The difference in these probabilities is approximately 23% (for the specification in Column 5 of Table 4). We calculate a similar joint significance of the benefits variables using a similar procedure and find a difference in the probability of hiring a CPA when the benefit variables are high versus low of 13%.[21]

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[21] These effects are similar for the specification in Column 4 of Table 4. The difference in probabilities is 21% (8%) if cost (benefit) variables that are statistically insignificant in Column 5 of Table 4 are instead held at their mean values. Because this calculation is based on differences in the probability of hiring a CPA when all the costs (or benefits) variables are high versus low, the combined effect is predicted for hypothetical firms. Nonetheless, these percentages highlight the joint economic significance of our determinants variables.

These results reinforce the notion that CPA CFOs are valued for their accounting expertise and companies respond to demand for financial reporting expertise by hiring CPAs as CFOs. However, firms also appear to recognize the costs of hiring CPA CFOs; in situations where operational or general management skills are more important, firms prefer to appoint non-CPA CFOs. Boards also appear to consider complementarities in the management team when they make hiring decisions.

4.3   Robustness analyses for determinants of hiring a CPA CFO

4.3.1   Observability of matching characteristics

Most of our proxies for the demand for accounting and non-accounting related expertise are based on firm characteristics in the year prior to hire. One concern with this approach is that these firm characteristics might not represent the firms' needs going forward. Although there is evidence from prior literature that, on average, managers are not hired to implement significant changes to firm characteristics or policies (Pan, 2015), we acknowledge that in some cases this is not true. In these situations managers are still matched to meet firms' needs; however, the firms' needs are less observable prior to hire, which reduces our ability to predict the expertise of the CFOs they hire.[22]

To provide evidence that firm characteristics prior to the hiring event generally represent the needs of the firm going forward, we separately examine the predictive strength of our model based on four proxies for the expected stability of the firm's operating environment. These proxies include the following (see Appendix A for variable definitions): 1) a significant operational change or event in the first full year of the CFO's tenure ($OpChange_{t+1}$), based on the assumption the firm anticipates large operational changes; 2) a large return shock in the year preceding the CFO's hire ($RetShock_{t-1}$), which is more likely to

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[22] The fact that we find significant associations between our proxies for firms' needs and CFO expertise suggests that, on average, "hiring for change" is not overwhelmingly pervasive in our sample. That is, if the firm's characteristics at $t - 1$ are not a good indication of its needs going forward, our tests are biased against finding a significant association between these characteristics and the type of CFO the firm hires.

be associated with significant subsequent changes at the firm; 3) high return volatility in the year preceding the CFO's hire ($RetVol_{t-1}$); 4) externally hired CFOs (*ExtHire*), based on prior evidence that firms hiring external candidates are more likely to make changes to the firm (Huson et al., 2004). We expect that the four events listed above raise the likelihood that characteristics at $t-1$ are less representative of the firm's needs going forward. Thus, for each of the four events we divide our sample into two subsamples based on whether the firm experienced the event; we then estimate our determinants model separately on the two subsamples. We expect that, collectively, the independent variables in our model will be *more* predictive of the hiring outcome for the subsample with more stable operating environments (i.e., *not* experiencing the event).

Our test statistic is the difference in the Pseudo R^2 between the two subsamples. Because the distribution of the test statistic is unknown, we conduct a randomization test to generate a null distribution of the difference between the predictive strength of the model based on random assignment of each observation (see Appendix B for additional details on this procedure). We use this null distribution to test the significance of the difference in the Pseudo R^2.

Table 5 presents the results of this analysis. Panel A presents results using our full determinants model including control variables (the model reported in Column (5) of Table 4), and Panel B reports results excluding the control variables (Column (4) of Table 4). In each case across the two panels, the Pseudo R^2 from our determinants model is smaller for the subsample undergoing a potential change. For example, the Pseudo R^2 from the determinants model is 2.2% for firm-years classified as having an operating change versus 3.1% for firm-years classified as not having an operating change. This difference is statistically significant with a p-value of 0.03 (i.e., in our randomization procedure, only 3% of the trials resulted in test statistics greater than the actual test statistic). This result provides

further evidence that the determinants model reflects firm-manager matching notwithstanding potential measurement error in the independent variables—that is, the model is more predictive when the needs of the firm are more stable, and therefore, more observable.

4.3.2   Demand for non-accounting expertise

Our inferences are valid only to the extent our proxies reflect firms' needs for accounting and non-accounting expertise. To provide further validation of our proxies, we consider whether they can be used to predict the hiring of a "generalist" CFO. We proxy for general management expertise using *MBA* because, like *CPA*, it is easily measured in a large sample and MBA CFOs are likely to have relatively diverse experiences and skill sets. Thus, we expect that the propensity to hire an MBA CFO is increasing in the net benefits of *non-accounting* expertise. To test this idea, we estimate an amended version of Equation (1) by replacing the dependent variable *CPA* with *MBA*.

The results of these analyses (untabulated) show that firms are more likely to hire a generalist CFO when they follow a product differentiation strategy (i.e., higher gross margin) or have higher analyst following, more complex operations, or higher levels of investment. These results are consistent with the notion that firms prefer to hire a generalist CFO when they have a greater demand for general management skills. We also find that firms with greater industry-level accounting complexity are less likely to hire MBA CFOs, consistent with boards recognizing that generalist CFOs are less likely to have expertise to handle complex accounting issues. Overall, this evidence increases our confidence that our proxies are capturing firms' needs for accounting-related and non-accounting related expertise. However, we recognize that because *MBA* is negatively correlated with *CPA* (-0.19), this evidence is not independent from the main analysis and should be interpreted accordingly.

4.3.3 Measurement of accounting expertise

Throughout our paper, we define accounting expert CFOs as those individuals who have received a CPA certification. Although we provide evidence that, on average, CPA CFOs have less finance, operational, and general management experience, it is likely that some subset of our CPA CFOs also develop non-accounting related expertise (through education or work experience). For example, the descriptive statistics in Table 2 indicate that 29% of our CPA hires also have an MBA. Including these CFOs with the CPA CFO group potentially weakens the power of our tests (due to measurement error in the dependent variable). To test the sensitivity of our results to this classification decision, we re-estimate our determinants model excluding CFO hires that have both a CPA and an MBA. We find inferentially similar results with this specification (untabulated).[23]

4.4 Additional corroborating analyses

4.4.1 Turnover analysis

Because the needs of the firm change over time, the expertise of the existing CFO may become a poor match for the firm's current needs. The board is likely to replace the CFO once the costs of doing so are lower than the costs of a low quality firm-manager match. We use our determinants model to identify situations where there has been a significant decline in the quality of the firm-manager match since the initial appointment. To the extent that our determinants model is reasonably descriptive of the firm-manager matching process, we expect a higher probability of CFO turnover when the quality of the firm-manager match declines.

To examine this possibility, we first calculate the predicted probability of hiring a CPA CFO using Equation (1) for the year of hire and each subsequent firm-year until the

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[23] Similarly, it is possible that older CPA CFOs develop more non-accounting skills. We re-estimate our determinants model excluding CFO hires in the top quartile of age. We find inferentially similar results (untabulated).

CFO's departure ($PredCPA_{t+n}$, where t is the hire year). We then calculate ΔCPA_Fit_{t+n}, equal to the predicted value in each year subsequent to the date of hire less the predicted value at the hire date, scaled by the predicted value at the hire date ($\Delta CPA\_Fit_{t+n} = (PredCPA_{t+n} - PredCPA_t) / PredCPA_t$). Higher (lower) values represent situations where the needs of the firm change toward (away from) needing a CPA CFO. Put differently, if the firm has a non-CPA CFO, a *high* value of ΔCPA_Fit_{t+n} would suggest a decline in fit, whereas, if the firm has a CPA CFO, a *low* value of ΔCPA_Fit_{t+n} would suggest a decline in fit. Thus, we define a $PoorFit_{t+n}$ indicator variable equal to one if the firm has a CPA CFO (non-CPA CFO) and ΔCPA_Fit_{t+n} is in the bottom (top) quintile of the distribution. We then estimate the probability the CFO leaves the firm in a given year (CFO_Exit_{t+n+1}) as a function of the $PoorFit_{t+n}$ indicator.[24] We also include a number of control variables that are likely to affect the propensity of a CFO exit, including lagged returns, CEO tenure, CFO age, and measures of a CFO's ability (prior CFO experience and board experience) (Mian, 2001). Further, we include CFO tenure fixed effects to control for the propensity for CFOs to turnover at similar points in their tenure and industry fixed effects. We run the analysis separately for non-CPA CFOs and CPA CFOs because the effects of the controls on turnover are plausibly different between CPA and non-CPA CFOs.

Results of this analysis are presented in Table 6. Columns (1) and (2) report results for the non-CPA CFO and CPA CFO subsample, respectively. We find a positive coefficient on the $PoorFit_{t+n}$ indicator variable in Column (1), suggesting that non-CPA CFOs are more likely to leave the firm when their match quality declines. In Column (2), however, we do not find that CPA CFOs are significantly more likely to leave the firm when their match quality declines. When we control for the full set of determinants we continue to find a significant

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[24] Ideally, we could measure involuntary CFO turnover (firings), but identifying such situations is empirically difficult. Moreover, a CFO may choose to leave voluntarily because of a mismatch between her skills and the needs of the firm.

positive coefficient on the $PoorFit_{t+n}$ indicator for our non-CPA CFO subsample and also find a significant positive coefficient for our CPA CFO subsample (Columns (3) and (4)). This latter result likely reflects the fact that some determinants affect the likelihood of turnover directly, not only through their effect on the firm-manager match quality. Jointly with the main analysis, these results provide some corroborating evidence that firms hire (and potentially terminate) CFOs based on whether their expertise matches the needs of the firm.[25]

4.4.2 Compensating changes in the top management team

The results from the main determinants model indicate that, on average, firms are more (less) likely to hire a CPA CFO if an individual holds a COO (high-level accounting-related) position at the time of the CFO's hire. This suggests that firms could compensate for any weaknesses in the skill sets of their top executives by shifting job responsibilities across the top management team. Thus, CFO job responsibilities may be not identical across firms. Firms could hire non-CFO accounting experts to assume accounting related responsibilities of a non-CPA CFO. Similarly, firms could hire operations executives to assume certain non-accounting responsibilities of a CPA CFO.

We explore this possibility by examining the association between changes in the accounting expertise of the CFO and subsequent changes in the presence of COO and accounting-related positions at the firm. We classify CFO appointments as either *AddCPA,* when the CFO hired has a CPA and the prior CFO did not, or *DropCPA*, when the CFO hired does not have a CPA and the prior CFO did. Thus, for this analysis we eliminate appointments where both the prior and current CFO had similar accounting expertise (both CPAs or both non-CPAs) as well as hiring events for which we do not have data on the identity of the prior CFO. We then define observations as *DropCOO* (*AddCOO*) where the

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[25] We do not examine the accounting expertise of the CFOs hired as replacements to the CFOs in this turnover analysis, because the replacement CFOs are included in the primary sample examined in Section 4.2. Thus, examining whether firms whose characteristics now suggest the need for a CPA CFO (non-CPA CFO) subsequently hire such a CFO is somewhat redundant with our main analysis.

firm had (did not have) a COO in the year prior to the CFO's hire, but does not have (has) a COO by the end of the second calendar year after the CFO's hire. This approach assumes that boards would restructure the top management team within two years to adapt to any changes in the skill sets of their CFOs. We use similar definitions for *AddAcctg* and *DropAcctg*.

Table 7, Panel A presents a contingency table of the proportion of CFO hires that (1) represent the addition (deletion) of a CPA CFO and (2) occur in conjunction with the addition (deletion) of a COO. The results indicate that when a firm moves from a CPA CFO to a non-CPA CFO (*DropCPA* row), it is more likely to drop its COO position (51.6%) versus add a COO position (48.4%). In contrast, when a firm moves from a non-CPA CFO to a CPA CFO (*AddCPA* row), it is more likely to add a COO position (53.8%) versus drop its COO position (46.2%). A Chi-square test indicates a significant association between the decision to hire an accounting expert CFO and subsequent changes to the COO position ($\chi^2 = 3.071$, $p < 0.10$).

Table 7, Panel B presents the contingency table for accounting-related positions. Consistent with the results for COO positions, we find that when a firm moves from a CPA CFO to a non-CPA CFO (*DropCPA* row), it is more likely to add another accounting-related position to the management team (51.4%) rather than drop such a position (48.6%). The reverse is true when a firm moves from a non-CPA CFO to a CPA CFO (*AddCPA* row): the firm is significantly more likely to drop an accounting-related position (59.8%) rather than add such a position (40.2%) ($\chi^2 = 10.617$, $p < 0.01$). Overall, these results reinforce the idea that firms take actions to adapt to changes in the skill sets of CFOs.

4.4.3 *Progression to the CEO position*

Although the main results are consistent with the hypothesis that CPA CFOs' investment in accounting expertise involves a tradeoff between accounting expertise and other skill sets, we recognize that our inferences are based on proxies for firms' needs for accounting and non-accounting expertise. As an alternative approach, we examine the

likelihood that a CPA CFO moves into a CEO position. This analysis is based on the assumption that the CEO position requires greater non-accounting related expertise and less accounting related expertise. Alternatively stated, the benefits of accounting expertise are likely lower and the costs are likely higher in the CEO position. Thus, rather than relying on proxies to capture cross-sectional variation in firms' needs for accounting (or non-accounting related expertise), we rely on variation in the needs associated with a particular managerial position—the CEO position. Specifically, we examine the probability that, within five years of being hired as CFO, the individual (1) becomes a CEO at any U.S. public firm or (2) becomes the CEO at the same firm where she is currently employed as CFO.[26] For both dependent variables, we estimate the following logistic regression model:

$$CEO_{t,t+5} = \gamma_0 + \gamma_1 CPA_t + \gamma_2 PriorCFO_t + \gamma_3 LnMVE_{t-1} + \gamma_4 Age_t + \varepsilon_t \qquad (2)$$

Table 8 presents the results of estimating Equation (2), including the corresponding average marginal effects. The results suggest that CPA CFOs are significantly less likely than non-CPA CFOs to progress to the CEO position either at any U.S. public company (Column (1)) or at the CFO's current firm (Column (2)). The average marginal effect implies that CPA CFOs are approximately 1.7% less likely to become a CEO *at any public company* within five years of being hired as a CFO, which is large in the magnitude given that the overall likelihood of becoming a CEO is 5.6% within our sample ($CEO_{kt,t+5}$, Table 2 Panel A). Similarly, the results in Column (2) suggest that CPA CFOs are less likely to become the CEO at their current firm in the five years following hire, suggesting that the results in Column (1) are not due to the effect of omitted firm-level variables correlated with CPA (e.g., that CPA CFOs tend to work for smaller firms). The average marginal effect of this model is 0.6%, which is considerable given that the overall likelihood of becoming the CEO

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[26] Note that because we only have employment data until the end of 2013, we only conduct this analysis on CFOs that were hired between 2000-2008.

at the current firm is 1.2% within our sample ($CEO_{it,t+5}$, Table 2 Panel A). These results are consistent with our prediction that accounting expertise entails costs in terms of a tradeoff with general management skills that would be useful for non-accounting related job responsibilities, such as those faced by a CEO.[27]

4.4.4 Firm-manager matching based on managerial preferences

Although we interpret firms' hiring outcomes as a reflection of their needs for specific CFO expertise, two factors might cause managers select into firms with particular characteristics. First, they could choose to work for firms at which they expect to perform best given their particular skill set. That is, their employment preferences are correlated with their skill sets. In this case, the observed firm-manager matching process would be consistent with our interpretation that the associations capture the costs and benefits of accounting expertise.

Second, it is possible that managers have preferences to work at firms with certain characteristics for other reasons, such as risk aversion (e.g., Hoitash et al., 2016). The influence of such preferences on our results could be problematic if they are correlated with our cost and benefit variables—i.e., what we attribute to a matching of firms' needs with managers' skills is actually a managerial preference (unrelated to their skills) for a certain type of firm. For example, if CPA CFOs are generally risk averse, they might prefer not to work for distressed firms. Thus, the fact that distressed firms are less likely to hire CPA CFOs might be due to CPA CFOs' preferences rather than the firms' needs for general management experience.

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[27] If firms value non-accounting expert CFOs because of their ability to move into the CEO position, we might expect that firms with older CEOs (that is, those in greater need of succession planning) would be more likely to hire a non-accounting expert CFO, because her skills make her a better candidate to succeed the current CEO. We find a negative but statistically insignificant coefficient on CEO age if we include this variable in Equation (1) (t-statistic = -1.46). However, we lose approximately 22% of the sample from Column (5) in Table 4 when we include this variable, so we do not include it in our main analysis.

Risk aversion could provide only a partial alternative interpretation of our results given that many of the firm characteristics associated with hiring a CPA CFO have little apparent relation to the firm's risk. Nonetheless, we investigate the potential for risk aversion to partly account for the firm-manager matching we observe. Specifically, we examine whether the percentage of a CFOs total compensation that is fixed (i.e., the salary portion of their total compensation) differs for CPA CFOs versus non-CPA CFOs in the year after they are hired, incremental to a variety of determinants of executive compensation studied in prior literature (e.g., Wang, 2010). The results (untabulated) provide no evidence that CPA CFOs receive a greater proportion of fixed compensation.[28] This finding is inconsistent with the notion that CPA CFOs are inherently more risk averse and thus inconsistent with the interpretation that CPA CFOs have preferences to work at "safer" firms.

5. Conclusion

This paper examines firms' hiring decisions to infer the costs and benefits of CFO accounting expertise. We first provide evidence that acquiring accounting expertise requires a tradeoff in terms of acquiring other skills and knowledge (e.g., finance or general management). Consistent with firm-manager matching that reflects this tradeoff, we find that firms' propensity to hire a CPA CFO is increasing (decreasing) in the expected benefits of accounting expertise (non-accounting expertise) of the CFO position.

We conduct a series of analyses to address concerns associated with potential measurement error in our empirical proxies. First, we identify situations in which firm characteristics are more likely to represent the firms' needs going forward and find that our model is more effective at predicting the expertise of the CFO hired in these cases. Second, we obtain similar inferences when examining firms' decisions to hire more "generalist"

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[28] We observe meaningful variation in the proportion of fixed compensation in our sample. For instance, the 25th (75th) percentile is 0.21 (0.46). Thus, the lack of significant differences between CPA and non-CPA CFOs is unlikely due to low variation in the proportion of fixed compensation.

CFOs based on their demands for non-accounting expertise. Third, we show that our results of the determinants model are robust to excluding CFOs who hold both a CPA and MBA, whose experiences are more likely to lead to a greater amount of non-accounting expertise.

Finally, we provide additional corroborating evidence to validate our inferences. We show that low quality firm-manager matches are associated with a higher probability of CFO turnover. We also find evidence that changes in the accounting expertise of CFOs are associated with changes in the composition of the top management team, consistent with firms making hiring decisions to compensate for deficiencies in CFOs' skill sets. Further, we find that CPA CFOs are less likely to become CEOs in the five years following their CFO appointment, consistent with CPA CFOs lacking non-accounting expertise that is valuable in the CEO position. Lastly, we do not find evidence that managers' preferences unrelated to their skill sets would explain the associations we document.

Overall, our results suggest firms recognize the tradeoffs in CFOs' skill sets and hire CFOs based on the needs of the firm. These results highlight the importance of appropriately controlling for ex ante endogenous firm matching when examining how manager characteristics affect firm outcomes. Our findings further highlight the difficulty in attributing firm outcomes to a *specific* manager, as firms take actions to mitigate potentially costly tradeoffs in the skill sets of their executive team. Our study contributes to the literature on the matching of managers' skills with firms' needs and highlights potential costs of acquiring accounting expertise, which could be informative for boards of directors in their hiring decisions and managers for their career development.

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Appendix A: Variable definitions

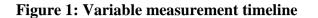| Variable Name	Definition
|Accruals|	Absolute value of total accruals, scaled by total assets (Compustat items (|IBC-OANCF|)/AT)
ΔCPA_Fit_{t+n}	Predicted value of Equation (1) in each year subsequent to the CFO's date of hire less the predicted value at the hire date (n = 0), scaled by the predicted value at the hire date.
Acctg	Indicator variable equal to one if the firm has an individual other than the CFO with the term "Accounting" or "Controller" in the role description, and zero otherwise
AddAcctg	Indicator variable equal to one if the firm did not have an accounting-related position in the year prior to the CFO's hire but does by the end of the second calendar year after the CFO's hire and zero otherwise
AddCOO	Indicator variable equal to one if the firm did not have a COO in the year prior to the CFO's hire but does by the end of the second calendar year after the CFO's hire and zero otherwise
AddCPA	Indicator variable equal to one if the CFO hired has a CPA and the prior CFO did not (where data is available) and zero otherwise
Age	Age of the CFO
AnalystFollow	Natural log of 1+maximum number of estimates used in calculating a consensus EPS forecast for the firm at any point during the fiscal year. Missing values are set to zero.
BM	Book-to-market (Compustat items CEQ/(CSHO*PRCC_F))
BoardSeat	Indicator variable equal to one if the CFO held a board seat at a public company at the time they were hired as CFO at the sample firm
CEOCPA	Indicator variable equal to one if the CEO has a CPA or Chartered Accountant qualification, and zero otherwise
CEOTenure	Tenure of the CEO (in years) at the time the CFO was hired at the sample firm
$CEO_{it,t+5}$	Indicator variable equal to one if the CFO became CEO of the same firm within 5 years of being initially hired as a CFO at the sample firm, and zero otherwise
$CEO_{kt,t+5}$	Indicator variable equal to one if the CFO became CEO of *any* public firm (including the firm where the CFO is hired) within 5 years of being initially hired as a CFO at the sample firm, and zero otherwise
CFA	Indicator variable equal to one if the CFO has a CFA qualification, and zero otherwise
CPA	Indicator variable equal to one if the CFO has a CPA or Chartered Accountant qualification, and zero otherwise
Distress	Indicator variable equal to one if the firm reports negative book value of equity (Compustat item CEQ)
DropAcctg	Indicator variable equal to one if the firm had an accounting-related position in the year prior to the CFO's hire but did not at the end of the second calendar year after the CFO's hire and zero otherwise
DropCOO	Indicator variable equal to one if the firm had a COO in the year prior to the CFO's hire but did not at the end of the second calendar year after the CFO's hire and zero otherwise
DropCPA	Indicator variable equal to one if the CFO hired does not have a CPA and the prior CFO did (where data is available) and zero otherwise
ExtHire	Indicator variable equal to one if the CFO position was the first position the individual held at the company, as reported on BoardEx
FIN	Indicator variable equal to one if the executive has prior work experience at an investment banking firm or they hold a CFA

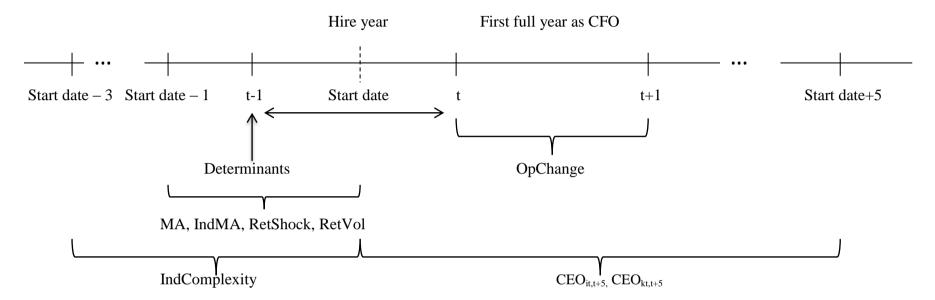|	
	qualification and zero otherwise
GeoSeg	Log of number of geographic segments at the firm
GrossMargin	Gross margin (Compustat items (SALE-COGS)/SALE)
IndGrossMargin	Median industry gross margin; industry defined at the 3-digit SIC code
IB Experience	Indicator variable equal to one if the CFO has prior experience listed in BoardEx from an investment bank, and zero otherwise
ICW	Indicator variable equal to one if the firm reported an internal control weakness
IndComplexity	Natural log of 1+average number of non-fraud restatements in the firm's Fama-French 12 industry group
Investment	Natural log of 1 + capital expenditures plus research and development, scaled by sales (Compustat items (CAPX+XRD)/SALE)
Lev	Leverage, where values greater than 1 are winsorized to 1 (Compustat items (DLC+DLTT)/AT)
MA	Natural log of 1+number of acquisitions the firm made in the most recent 365 days
IndMA	Natural log of one plus the total number of acquisitions of an industry in the most recent 365 days; industry defined at the 3-digit SIC code
MBA	Indicator variable equal to one if the CFO holds an MBA degree, and zero otherwise
MVE	Market value of equity (Compustat items CSHO*PRCC_F)
OpChange	Indicator variable equal to one if any of the following criteria hold: (1) special items, discontinued operations, or restructuring charges are greater than 5% of sales, (2) the firm experienced a change in their industry (either NAICS or SIC), or (3) sales have been "restated for/reflects a major merger or reorganization resulting in the formation of a new company" (Owens et al. 2016) and zero otherwise
PoorFit	Indicator variable equal to one if the CFO hired at the sample firm is a non-CPA (CPA) and ΔCPA_Fit is in the top (bottom) quintile of the distribution
PriorCFO	Indicator variable equal to one if the CFO has prior experience as a CFO of a public company
Prop Public US Exp	Proportion of prior years of experience listed on BoardEx spent at a US public company
Ret	Market adjusted buy and hold annual returns
RetShock	Indicator variable equal to one if the maximum absolute monthly return in the year prior to the CFO's hire is above the mean in our sample and zero otherwise
RetVol	Indicator variable equal to one if the firm's stock return volatility in the year prior to the CFO's hire is above the mean in our sample and zero otherwise
ROA	Return on assets (Compustat items OIADP/AT)
SOX	Indicator variable equal to one if the CFO was hired between 2004 and 2006 (inclusive) and zero otherwise
Tenure	Tenure in the CFO position at the sample firm (missing when BoardEx indicates the individual was CFO at the firm in 2013)

Appendix B: Description of randomization tests to assess differences in predictive strength of determinants model

In Table 5, we report the Pseudo R^2 from estimating our determinants model on various subsamples of firm-years identified as undergoing significant change versus remaining stable. To test the significance of the difference in Pseudo R^2s between the subsamples, we use a randomization test similar to that used in Lundholm and Myers (2002) and described further below.

We first calculate the test statistic, which represents the difference in the Pseudo R^2 of Equation (1) for each subsample of firms (e.g., for those with $OpChange_{t+1} = 0$ and those with $OpChange_{t+1} = 1$). We then randomly assign firms to each group, ensuring that the number of firms in each subsample is held constant with each randomization. For instance, within our sample, 4,950 (1,506) observations were used to calculate the Pseudo R^2 for the $OpChange_{t+1} = 0$ ($OpChange_{t+1} = 1$) subsamples. Therefore, when calculating the null distribution for this subsample grouping variable, we randomly assign 4,950 observations from this potential sample of 6,456 observations to the non-operating change subsample and 1,506 to the operating change subsample. This ensures that the null distribution of the test statistic is not affected by differences in the sample size used. Once firms are randomly assigned into a subsample, we re-estimate the test statistic. We repeat this random assignment and re-estimation 999 times, which gives us a distribution of the test statistic under the null hypothesis of no difference in the predictive ability of our model between firms that experienced an operating change in year $t + 1$ and those that did not. The significance level of the test statistic is (NGE + 1)/1000, where NGE represents the number of test statistics from the null distribution that is at least as large as our calculated test statistic (e.g., 0.009 for $OpChange_{t+1}$).[30]

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[30] We perform this procedure numerous times and although the specific p-value changes in each trial due to the randomization, our inferences are unchanged with respect to the significance level at conventional cutoffs.

Figure 1: Variable measurement timeline

This figure presents an overview of the timing of variable measurement for our main analyses. See Appendix A for the variable definitions. "Determinants" includes the financial statement and top management team variables used in Table 4.

Figure 2: CPA hires over time

This figure presents a time plot, by year, of the proportion of CFOs hired who have received a CPA or international equivalent. The underlying data are tabulated in Table 1, Panel B.

Table 1, Panel A: Sample selection

	Number of observations
CFOs hired from 2000-2013 at publicly traded U.S. companies (excluding dual CEO-CFO positions and CFOs that were previously employed as CFO at the same firm)	13,908
Less: Divisional, regional, deputy, or co-CFOs	(660)
Less: Observations with missing CIK codes on BoardEx	(1,527)
Less: CFOs that were employed for less than a complete fiscal year	(1,907)
Less: Multiple CFOs hired in the same calendar year	(34)
Less: Firm-years with missing assets	(1,283)
Sample of CFO hires	**8,497**

Note: Actual sample sizes differ depending on availability of control variables

Table 1, Panel B: Sample distribution

Year	CFO hires	CPA hires	Non-CPA hires	Proportion of CFO hires with a CPA
2000	647	276	371	0.427
2001	624	300	324	0.481
2002	657	321	336	0.489
2003	636	325	311	0.511
2004	708	367	341	0.518
2005	733	372	361	0.508
2006	732	401	331	0.548
2007	690	372	318	0.539
2008	646	317	329	0.491
2009	444	234	210	0.527
2010	487	236	251	0.485
2011	457	214	243	0.468
2012	531	243	288	0.458
2013	505	237	268	0.469
Total	**8,497**	**4,215**	**4,282**	**0.496**

Table 2: Descriptive statistics

Panel A: Full sample

Variable	N	Mean	25th %	Median	75th %	Std Dev
CPA	8,497	0.496	0.000	0.000	1.000	0.500
MBA	8,497	0.382	0.000	0.000	1.000	0.486
FIN	8,497	0.101	0.000	0.000	0.000	0.301
PriorCFO	8,497	0.336	0.000	0.000	1.000	0.472
Prop Public US Exp	6,913	0.335	0.000	0.204	0.639	0.369
BoardSeat	8,497	0.157	0.000	0.000	0.000	0.364
ExtHire	8,497	0.598	0.000	1.000	1.000	0.490
Age	6,719	47.686	43.000	48.000	53.000	6.997
Tenure	5,247	4.063	2.359	3.490	5.208	2.202
$CEO_{kt,t+5}$	8,497	0.056	0.000	0.000	0.000	0.230
$CEO_{it,t+5}$	8,497	0.012	0.000	0.000	0.000	0.108
$IndComplexity_{t-3,t-1}$	8,497	1.885	0.847	1.792	2.909	1.390
$|Accruals_{t-1}|$	7,685	0.113	0.027	0.059	0.121	0.177
ICW_{t-1}	8,497	0.048	0.000	0.000	0.000	0.213
$GeoSeg_{t-1}$	8,497	0.476	0.000	0.000	1.099	0.656
$Distress_{t-1}$	8,104	0.084	0.000	0.000	0.000	0.277
$Investment_{t-1}$	7,810	0.196	0.019	0.059	0.169	0.435
$AnalystFollow_{t-1}$	8,497	1.017	0.000	0.000	2.197	1.199
MA_{t-1}	8,497	0.232	0.000	0.000	0.000	0.458
$IndMA_{t-1}$	8,497	3.718	2.890	3.871	4.812	1.470
$GrossMargin_{t-1}$	7,926	0.103	0.212	0.380	0.581	1.991
$IndGrossMargin_{t-1}$	8,497	0.397	0.277	0.393	0.514	0.154
$Acctg_{t-1}$	8,497	0.388	0.000	0.000	1.000	0.487
$CEOCPA_{t-1}$	8,497	0.063	0.000	0.000	0.000	0.243
COO_{t-1}	8,497	0.515	0.000	1.000	1.000	0.500
ROA_{t-1}	8,096	-0.023	-0.016	0.041	0.098	0.286
BM_{t-1}	8,232	0.561	0.123	0.422	0.774	0.629
Lev_{t-1}	8,130	0.232	0.021	0.173	0.359	0.237
$Ln(MVE)_{t-1}$	6,961	5.970	4.493	5.912	7.349	2.098

Table 2, Continued. Panel B: Descriptive statistics by CFO type

Variable	CPA			Non-CPA			Mean Difference	p-value
	N	Mean	Median	N	Mean	Median		
MBA	4,215	0.289	0.000	4,282	0.473	0.000	-0.184***	0.000
FIN	4,215	0.044	0.000	4,282	0.157	0.000	-0.114***	0.000
PriorCFO	4,215	0.350	0.000	4,282	0.322	0.000	0.028***	0.007
Prop Public US Exp	3,471	0.306	0.000	3,442	0.365	0.000	-0.058***	0.000
BoardSeat	4,215	0.134	0.000	4,282	0.180	0.000	-0.047***	0.000
ExtHire	4,215	0.606	0.000	4,282	0.590	0.000	0.016	0.138
Age	3,369	47.272	42.000	3,350	48.103	43.000	-0.831***	0.000
Tenure	2,573	3.981	2.307	2,674	4.142	2.411	-0.160***	0.008
$CEO_{kt,t+5}$	4,215	0.051	0.000	4,282	0.061	0.000	-0.011**	0.033
$CEO_{it,t+5}$	4,215	0.010	0.000	4,282	0.013	0.000	-0.003	0.184
$IndComplexity_{t-3,t-1}$	4,215	1.945	0.981	4,282	1.827	0.847	0.118***	0.000
$|Accruals_{t-1}|$	3,824	0.116	0.027	3,861	0.110	0.026	0.006	0.147
ICW_{t-1}	4,215	0.054	0.000	4,282	0.042	0.000	0.012***	0.009
$GeoSeg_{t-1}$	4,215	0.444	0.000	4,282	0.508	0.000	-0.064***	0.000
$Distress_{t-1}$	4,023	0.075	0.000	4,081	0.093	0.000	-0.019***	0.002
$Investment_{t-1}$	3,881	0.191	0.017	3,929	0.201	0.020	-0.009	0.349
$AnalystFollow_{t-1}$	4,215	0.925	0.000	4,282	1.108	0.000	-0.182***	0.000
MA_{t-1}	4,215	0.216	0.000	4,282	0.249	0.000	-0.033***	0.001
$IndMA_{t-1}$	4,215	3.749	2.944	4,282	3.689	2.890	0.060*	0.061
$GrossMargin_{t-1}$	3,936	0.084	0.213	3,990	0.121	0.212	-0.037	0.409
$IndGrossMargin_{t-1}$	4,215	0.399	0.284	4,282	0.394	0.274	0.005	0.176
$Acctg_{t-1}$	4,215	0.338	0.000	4,282	0.437	0.000	-0.098***	0.000
$CEOCPA_{t-1}$	4,215	0.070	0.000	4,282	0.056	0.000	0.014***	0.007
COO_{t-1}	4,215	0.518	0.000	4,282	0.512	0.000	0.006	0.565
ROA_{t-1}	4,020	-0.026	-0.023	4,076	-0.019	-0.009	-0.007	0.290
BM_{t-1}	4,086	0.567	0.136	4,146	0.555	0.111	0.013	0.361
Lev_{t-1}	4,035	0.225	0.013	4,095	0.239	0.029	-0.015***	0.005
$Ln(MVE)_{t-1}$	3,477	5.678	4.327	3,484	6.263	4.744	-0.585***	0.000

This table presents descriptive statistics for the full sample and separately for CPA and non-CPA hires. See Appendix A for variable definitions. ***, **, * indicate significance of the mean values between the CPA- and non-CPA CFO hires at the 1%, 5%, and 10% levels respectively.

Table 3: Correlation matrix

	(1)	(2)	(3)	(4) Prior	(5) Prop Public	(6)	(7)	(8)
	CPA	MBA	FIN	CFO	US Exp	BoardSeat	ExtHire	Age
(2) MBA	-0.189							
	(0.000)							
(3) FIN	-0.189	0.136						
	(0.000)	*(0.000)*						
(4) Prior CFO	0.029	0.100	-0.028					
	(0.007)	*(0.000)*	*(0.011)*					
(5) Prop Public US Exp	-0.083	0.146	0.003	0.352				
	(0.000)	*(0.000)*	*(0.787)*	*(0.000)*				
(6) BoardSeat	-0.064	0.051	0.064	0.104	0.037			
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.002)*			
(7) ExtHire	0.015	0.117	0.048	0.335	0.104	0.046		
	(0.156)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*		
(8) Age	-0.059	0.076	-0.097	0.257	0.091	0.120	0.157	1.000
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	

This table presents Pearson correlation coefficients between variables representing characteristics of the CFOs hired in our sample over the period 2000-2013. See Appendix A for variable definitions. p-values are presented in parentheses.

Table 4: Determinants of hiring a CPA CFO
Panel A: Coefficient estimates

VARIABLES	(1) Pr(CPA=1)	(2) Pr(CPA=1)	(3) Pr(CPA=1)	(4) Pr(CPA=1)	(5) Pr(CPA=1)
SOX_t	0.155***		0.132**	0.136**	0.136**
	(2.93)		(2.44)	(2.50)	(2.26)
$IndComplexity_{t-3,t-1}$	0.052***		0.076***	0.079***	0.090***
	(3.09)		(2.96)	(3.06)	(3.14)
$|Accruals_{t-1}|$	0.147		0.222	0.168	0.184
	(1.13)		(1.51)	(1.14)	(0.97)
ICW_{t-1}	0.213**		0.199*	0.219**	0.158
	(2.06)		(1.88)	(2.05)	(1.46)
MA_{t-1}		-0.082	-0.065	-0.047	0.010
		(-1.62)	(-1.24)	(-0.90)	(0.18)
$IndMA_{t-1}$		0.027	-0.010	-0.019	-0.024
		(1.55)	(-0.46)	(-0.86)	(-0.95)
$GrossMargin_{t-1}$		-0.029*	-0.031*	-0.032*	-0.040**
		(-1.71)	(-1.80)	(-1.85)	(-2.01)
$IndGrossMargin_{t-1}$		0.013	-0.139	-0.203	-0.435**
		(0.08)	(-0.77)	(-1.12)	(-2.17)
$GeoSeg_{t-1}$		-0.104***	-0.119***	-0.100***	-0.081**
		(-2.95)	(-3.32)	(-2.79)	(-2.08)
$Distress_{t-1}$		-0.383***	-0.425***	-0.419***	-0.614***
		(-4.39)	(-4.73)	(-4.65)	(-4.11)
$Investment_{t-1}$		-0.188**	-0.241***	-0.245***	-0.248**
		(-2.45)	(-3.07)	(-3.09)	(-2.51)
$AnalystFollow_{t-1}$		-0.135***	-0.133***	-0.105***	-0.015
		(-6.68)	(-6.46)	(-4.95)	(-0.54)
$Acctg_{t-1}$				-0.383***	-0.271***
				(-7.74)	(-4.93)
$CEOCPA_{t-1}$				0.305***	0.310***
				(3.19)	(3.03)
COO_{t-1}				0.072	0.103**
				(1.52)	(1.99)
ROA_{t-1}					0.226
					(1.52)
BM_{t-1}					-0.154***
					(-3.43)
Lev_{t-1}					-0.079
					(-0.62)
$Ln(MVE_{t-1})$					-0.140***
					(-7.33)
Constant	-0.174***	0.174**	0.188**	0.300***	1.171***
	(-4.16)	(2.20)	(2.17)	(3.18)	(7.62)
Observations	7,685	7,810	7,519	7,519	6,483
Pseudo R^2	0.003	0.009	0.012	0.019	0.028

Table 4, continued.
Panel B: Marginal effects

VARIABLES	(1) Pr(CPA=1)	(2) Pr(CPA=1)	(3) Pr(CPA=1)	(4) Pr(CPA=1)	(5) Pr(CPA=1)
SOX_t	0.038***		0.032**	0.033**	0.033**
	(2.93)		(2.45)	(2.50)	(2.27)
$IndComplexity_{t-3,t-1}$	0.013***		0.019***	0.019***	0.022***
	(3.10)		(2.97)	(3.07)	(3.15)
$|Accruals_{t-1}|$	0.037		0.055	0.041	0.044
	(1.13)		(1.51)	(1.14)	(0.97)
ICW_{t-1}	0.053**		0.049*	0.053**	0.038
	(2.06)		(1.88)	(2.06)	(1.46)
MA_{t-1}		-0.020	-0.016	-0.011	0.002
		(-1.62)	(-1.24)	(-0.90)	(0.18)
$IndMA_{t-1}$		0.007	-0.003	-0.005	-0.006
		(1.55)	(-0.46)	(-0.86)	(-0.95)
$GrossMargin_{t-1}$		-0.007*	-0.008*	-0.008*	-0.010**
		(-1.71)	(-1.80)	(-1.85)	(-2.01)
$IndGrossMargin_{t-1}$		0.003	-0.034	-0.049	-0.105**
		(0.08)	(-0.77)	(-1.12)	(-2.17)
$GeoSeg_{t-1}$		-0.026***	-0.029***	-0.024***	-0.020**
		(-2.96)	(-3.33)	(-2.79)	(-2.08)
$Distress_{t-1}$		-0.095***	-0.104***	-0.102***	-0.148***
		(-4.42)	(-4.76)	(-4.68)	(-4.13)
$Investment_{t-1}$		-0.046**	-0.059***	-0.060***	-0.060**
		(-2.45)	(-3.08)	(-3.09)	(-2.52)
$AnalystFollow_{t-1}$		-0.033***	-0.033***	-0.026***	-0.004
		(-6.75)	(-6.53)	(-4.98)	(-0.54)
$Acctg_{t-1}$				-0.093***	-0.065***
				(-7.86)	(-4.96)
$CEOCPA_{t-1}$				0.074***	0.075***
				(3.20)	(3.04)
COO_{t-1}				0.018	0.025**
				(1.52)	(1.99)
ROA_{t-1}					0.054
					(1.52)
BM_{t-1}					-0.037***
					(-3.44)
Lev_{t-1}					-0.019
					(-0.62)
$Ln(MVE_{t-1})$					-0.034***
					(-7.45)
Observations	7,685	7,810	7,519	7,519	6,483

This table presents estimates from a logistic regression of the determinants of hiring a CFO with a CPA qualification. The dependent variable equals one if the CFO hired has a CPA and zero otherwise. Panel A presents the coefficient estimates and Panel B presents the marginal effects. See Appendix A for other variable definitions. z-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

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Table 5: Cross-sectional variation in predictive ability of determinants model

Panel A: Including all variables from determinants model

	N	Pseudo R^2	
$OpChange_{t+1} = 0$	4,950	0.031	
$OpChange_{t+1} = 1$	1,506	0.022	
Difference		**0.009****	*p-value = 0.030*
$RetShock_{t-1} = 0$	4,044	0.034	
$RetShock_{t-1} = 1$	2,105	0.026	
Difference		**0.008***	*p-value = 0.074*
$RetVol_{t-1} = 0$	3,070	0.035	
$RetVol_{t-1} = 1$	3,413	0.026	
Difference		**0.008***	*p-value = 0.098*
$ExtHire = 0$	3,854	0.038	
$ExtHire = 1$	2,279	0.029	
Difference		**0.009***	*p-value = 0.080*

Panel B: Excluding control variables

	N	Pseudo R^2	
$OpChange_{t+1} = 0$	5,818	0.021	
$OpChange_{t+1} = 1$	1,663	0.016	
Difference		**0.005***	*p-value = 0.075*
$RetShock_{t-1} = 0$	4,081	0.026	
$RetShock_{t-1} = 1$	2,123	0.017	
Difference		**0.009****	*p-value = 0.050*
$RetVol_{t-1} = 0$	3,184	0.027	
$RetVol_{t-1} = 1$	4,335	0.019	
Difference		**0.008***	*p-value = 0.059*
$ExtHire = 0$	3,883	0.030	
$ExtHire = 1$	2,300	0.017	
Difference		**0.013*****	*p-value = 0.009*

This table presents the Pseudo R^2 from estimating Equation (1) separately on various subsamples. See Appendix A for variable definitions and Appendix B for a description of the procedure used to calculate the significance of the differences in the Pseudo R^2s. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Turnover analysis

GROUP	(1) non-CPAs	(2) CPAs	(3) non-CPAs	(4) CPAs
VARIABLES	Pr(CFO Exit$_{t+n+1}$=1)	Pr(CFO Exit$_{t+n+1}$=1)	Pr(CFO Exit$_{t+n+1}$=1)	Pr(CFO Exit$_{t+n+1}$=1)
PoorFit$_{t+n}$	0.202**	0.164	0.181**	0.179**
	(2.46)	(1.38)	(2.57)	(2.33)
Ret$_{t+n}$	-0.304***	-0.184**	-0.283***	-0.149*
	(-3.24)	(-2.14)	(-3.81)	(-1.80)
BoardSeat$_t$	0.225**	0.162*	0.181*	0.142*
	(2.21)	(1.84)	(1.66)	(1.66)
CEOTenure$_t$	-0.018***	-0.011	-0.021***	-0.015*
	(-4.02)	(-1.31)	(-4.44)	(-1.92)
Age$_{t+n}$	0.016***	0.002	0.020***	0.007
	(3.88)	(0.22)	(7.11)	(1.33)
PriorCFO$_t$	0.193***	0.117*	0.194***	0.093
	(2.69)	(1.78)	(2.63)	(1.37)
Ln(MVE$_{t+n}$)	-0.082***	-0.103***	-0.125***	-0.104***
	(-3.82)	(-3.46)	(-4.46)	(-3.24)
Lev$_{t+n}$	0.134	0.114	0.134	0.114
	(0.92)	(0.53)	(0.92)	(0.53)
BM$_{t+n}$	-0.056	-0.001	-0.056	-0.001
	(-0.97)	(-0.02)	(-0.97)	(-0.02)
ROA$_{t+n}$	-0.610***	-0.542***	-0.610***	-0.542***
	(-2.74)	(-3.59)	(-2.74)	(-3.59)
Constant	-3.389***	-3.933***	-2.224**	-3.338**
	(-2.64)	(-2.66)	(-2.17)	(-2.22)
Remaining determinants controls	No	No	Yes	Yes
CFO tenure fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	10,127	10,372	10,127	10,372
Pseudo R^2	0.041	0.049	0.084	0.089

This table presents estimates from a logistic regression of the determinants of CFO turnover. The dependent variable equals one if the CFO turns over during the following year ($t + n + 1$). See Appendix A for other variable definitions. Columns (1) and (3) present results for non-CPA CFOs; Columns (2) and (4) present results for CPA CFOs. Industry fixed effects are defined using two-digit SIC codes. Standard errors are clustered by year. *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Executive team expansion

Panel A: Change in the existence of a COO position

	DropCOO	AddCOO	Total
DropCPA	239 [51.6%]	224 [48.4%]	463 [44.0%]
AddCPA	271 [46.2%]	317 [53.8%]	589 [56.0%]
Total	511	541	1,052

$\chi^2 = 3.071; p - value = 0.080$

Panel B: Change in the existence of an accounting-related position

	DropAcctg	AddAcctg	Total
DropCPA	186 [48.6%]	197 [51.4%]	383 [45.8%]
AddCPA	271 [59.8%]	182 [40.2%]	453 [54.2%]
Total	457	379	836

$\chi^2 = 10.617; p - value = 0.001$

This table presents two-way contingency tables for the subsample of CFO hires for which we have data on the prior CFO employed at the firm. Panel A sorts observations based on whether firms change the operational expertise of the top management team by either adding a COO position (*AddCOO*) or dropping a COO position (*DropCOO*) following an increase in the accounting expertise of the CFO (*AddCPA*) or decrease in the accounting expertise of the CFO (*DropCPA*). Panel B sorts observations based on whether firms either add or drop an accounting-related position on the top management team (*AddAcctg* or *DropAcctg*) when the firm increases or decreases the extent of accounting expertise of the CFO (*AddCPA* or *DropCPA*). See Appendix A for variable definitions. Each cell reports total observations that fall in that cell along with the percentage of each row total that cell comprises (shown in brackets). We also report Pearson's Chi-squared for the hypothesis that the rows and columns in each table are independent.

Table 8: Likelihood of becoming a future CEO

VARIABLES	(1) Pr(CEO$_{kt,t+5}$=1) Coefficient	(1) Pr(CEO$_{kt,t+5}$=1) Marginal effects	(2) Pr(CEO$_{it,t+5}$=1) Coefficient	(2) Pr(CEO$_{it,t+5}$=1) Marginal effects
CPA	-0.267**	-0.017**	-0.426*	-0.006*
	(-2.15)	(-2.14)	(-1.75)	(-1.72)
PriorCFO	0.292**	0.019**	0.183	0.003
	(2.25)	(2.24)	(0.72)	(0.72)
Ln(MVE$_{t-1}$)	0.035	0.002		
	(1.06)	(1.06)		
Age$_t$	-0.016*	-0.001*	-0.029	-0.000
	(-1.74)	(-1.73)	(-1.55)	(-1.53)
Constant	-2.033***		-2.731***	
	(-4.12)		(-3.11)	
Observations	4,262		4,996	
Pseudo R^2	0.006		0.007	

This table presents estimates from a logistic regression model estimating the likelihood of career progression via future CEO positions. See Appendix A for a list of variables used in the analysis. Robust z-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1.