

CFO Career Prospects and Earnings Quality

Abstract

In this study, we find strong evidence that newly public firms led by Chief Financial Officers (CFOs) with greater career prospects are less likely to engage in accrual-based and real earnings management and have a lower likelihood of misstatement in the offering year. Results from instrumental variables regression and entropy balancing approach further alleviate endogeneity concerns. We also document that the negative effect of CFOs career prospects on abnormal accruals is stronger among VC-backed firms and those firms with greater monitoring. Finally, we find that CFOs with high career prospects use Initial Public Offerings events to accelerate their career and be promoted in higher positions in either the same firm or in other public firms in the years following the IPO.

JEL classification: M40, M41, M52

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1. Introduction

While, Chief Financial Officers (CFOs) are in charge of financial reporting and firm budgeting (Kaufman, 2003; Datta and Datta, 2014), the vast majority of the literature has mainly focused on the role of Chief Executive Officers (CEOs) on financial performance (Bergstresser and Philippon, 2006; Demerjian et al., 2012; Huang et al., 2012; Chen et al., 2015). However, another strand of the literature argues that the image of the CFO as a simple money-counter and bookkeeper who tracks regulatory compliance no longer exists. Specifically, they mention the importance of CFO in firms' hierarchy and show that CFOs' responsibilities, apart from financial-related ones, go beyond participating in major corporate decisions such as responsibilities for raising capital and communicating firm performance to potential investors (Mian, 2001; Geiger et al., 2006; Chava and Purnanandam, 2010; Bedard et al., 2014; Hoitash et al., 2016; Florackis and Sainani, 2018; Mobbs, 2018).

In our study, we add to this stream of literature by examining the effect of CFO role on the earnings quality (EQ) of Initial Public Offerings (IPOs). Our examination of the association between CFO career prospects and earnings quality of newly listed firms is motivated by the following sources. First prior literature has focused only on the effect of CEO on earnings management around IPOs, leaving thus the role of CFOs unexplored (Lowry and Murphy, 2007; Chahine and Goergen, 2011; Gounopoulos et al., 2020). Second, academic surveys show that CFOs are hired on average three years prior to the Initial Public Offering (IPO), are the individuals that most directly represents investors, and are involved in every stage of the IPO process, from the selection of the underwriter (or the choice of the auditor) and the due diligence and filing to the transition to market competition (Brau et al., 2006; Larcker and Tayan, 2018). As such, IPOs CFOs play a critical role in communications between their newly public firms, shareholders and potential investors.

We also investigate the effect of CFOs on the IPO setting as CFOs have strong incentives to manipulate earnings (mislead investors by inflating earnings). Specifically, since CFOs are directly

responsible for financial reporting decisions, they might be subject to self-seeking behaviour and may instigate accounting manipulations for immediate personal financial gain due to the high level of information asymmetry between managers and investors around IPOs (Jiang et al., 2010).¹ However, CFOs may also engage in earnings manipulation because of the pressure from their superiors (CEOs) (Feng et al., 2011; Bishop et al., 2017; Florackis and Sainani, 2020). For instance, CEOs can influence various decisions associated to CFOs' future job opportunities and remuneration packages, which could exert pressure on CFOs regarding financial reporting decisions (Matejka, 2007).

Furthermore, IPOs offer fruitful context to investigate our research question, as they are among the most significant corporate resource allocation decisions that managers make over their careers (Lowry et al., 2017). They also facilitate entrepreneurship, job creation and financial sustainability (Fama and French, 2004; Doidge et al., 2013). Given that the practice-oriented literature reveals that IPO firms actively search for "deal maker CFOs" (Brau and Fawcett, 2006; Howell, 2012), CFOs are provided with the necessary influence to initiate deals which can boost their reputation and career.

The above discussion raises several interesting questions. For instance, who have the most influence on earnings quality around IPOs? Do CFOs play a stronger role than those of the CEO in earnings quality? If so, what is the underlying mechanism? Should IPO process be viewed as motivating factor to advance CFOs career or as a reflection of self-seeking behavior? How does external and internal monitoring influence the above association? Do IPOs help CFOs to boost their career?

Motivated by the scant empirical evidence on the subject, we address these questions by building on two views. One argues that CFOs with long-career prospects are likely to engage in actions either for private financial gain or to meet performance expectations which may worsen the quality of the earnings (Burns and Kedia, 2006; Karpoff et al., 2008; Bedard et al., 2014; Pae et al.,

¹ For instance, the former Chairman of the Federal Reserve Board, Alan Greenspan, supports that numerous top executives (including CFOs) inflate earnings to gather stock market gains.

2015). We label this *the Rent Extraction Hypothesis*. An alternative view, which we name *the Reputation Hypothesis*, supports that young CFOs with greater career prospects do not engage in actions that lead to poor earnings quality due to the potential dismissal, reputation damage and lower cost of capital for the firms that they led (Holmstrom, 1999; Francis et al., 2004; Francis et al., 2008; Strobl, 2013)

Using a sample of US IPO firms from 2000 to 2017, we initially document that CFOs matter more than CEOs for the financial reporting process around IPOs. In particular, our results indicate that IPO firms with CFOs with high career prospects are less likely to engage in earnings management and have a lower likelihood of misstatement. In economic terms, a one standard deviation increase in CFO decision horizon is associated with a 9.88% decrease in abnormal accruals. In subsequent analysis, we find that CFOs with long-career prospects have a lower retention rate in the post-IPO period compared to those with short-career prospects. Therefore, the above results indicate that CFOs initially prefer not to engage in EM as this increases the risk of job loss and reputation damage in the labor market for executives, instead they choose to create human-capital by participating in the IPO event to boost their career. Finally, we use a set of robustness tests to assess the stability of our results.

We document that our findings are robust once we use different matching methods and alternative key measures. However, a major challenge in interpreting our findings is that the association between CFO career prospects and earnings management could be driven by unobservable factors related to both EQ and CFO career prospects. Another concern is the reverse causality problem, that is, companies with high levels of earnings manipulation prefer to hire CFOs with shorter career prospects. Thus, to further address endogeneity, we implement an instrumental variable (IV) approach.

Finally, we attempt to deal with endogenous firm-CFO matching due to observable characteristics. Using a one-to-one Propensity Score Matching (PSM) and the entropy balancing approach (Jacob et al., 2018; Chapman et al., 2019; Hendricks et al., 2019) that both minimize the

distributional CFO and firm differences between firms with CFOs with high and those with low career prospects, we continue to find a negative relationship between CFO career prospects and earnings manipulation.

We also uncover a number of interesting cross-sectional variations in the effects of CFO career prospects on earnings management. We investigate whether the effect of CFO career prospect should vary with the internal and external monitoring. Using governance quality for the internal monitoring, we document that the CFO career prospects effect is indeed stronger in well-governed firms. We also use institutional ownership as a measure of external monitoring and find that the negative association between CFO career prospects and EM is stronger among firms with high institutional ownership.

We next examine whether the negative effect of CFO career prospects should vary with the industry competition. Specifically, our results show that the negative impact of CFO career prospects on EM is more pronounced in more competitive industries. Our analysis also suggests that CFO incentives have a mitigating effect on the relationship between CFO career prospects and earnings management, while financial intermediaries and more specifically, venture capitalists seem to strengthen the negative association between CFO career concerns and earnings manipulation.

To provide further insights on the effect of CFO career prospects on CFO career after IPO, we initially investigate their effect on post-IPO CFO turnover. Our results suggest that CFOs with longer career prospects are more likely to leave in the next five years following the offerings. In subsequent analysis, we find that CFOs with longer career prospects have more probabilities to be promoted in the position of CEO in the same firm or another public firm. Taken together, these results suggest that CFOs use IPO events as accelerating factors to promote their career and they do that through the financial reporting channel.

This study contributes to the literature in several ways. First, we add to the literature on the impact of top executive's on EM which has primarily focused on CEO, by documenting that the CFO role matters to a firm's financial reporting outcomes. Prior literature has mainly focused on how

certain CEO characteristics affect earnings management. For instance, Bergstresser and Philippon (2006) analyze the role of CEO compensation incentives and Capalbo et al. (2018) the impact of CEO narcissism. Schrand and Zechman (2012) focus on CEO overconfidence. Hazarika et al. (2012) investigate the impact of CEO turnover on EM, while Ali and Zhang (2015) examine the effect of CEOs' tenure. Despite their importance, there is little empirical evidence on CFOs role and their importance on financial reporting process (e.g., Graham and Harvey, 2001; Aier et al., 2005; Geiger and North, 2006; Ge et al., 2011; Bedard et al., 2014; Hoitash et al., 2016; Florackis and Sainani, 2018). We extend this strand of literature by examining how the CFO career prospects affect the firm's financial reporting process.

Second, we contribute to extant IPO literature on the impact of top executives on newly public firms (Certo et al., 2003; Lowry and Murphy, 2007; Chahine and Goergen, 2011; Chahine and Goergen, 2014; Gounopoulos and Pham, 2018; Hendricks et al., 2019; Colak et al., 2020). To the best of our knowledge, this is the first study that explores empirically the impact of CFOs on IPOs.² In particular, we show that CFO's career prospect has a negative impact on earnings management. Third, we add to the CFO literature, indicating that CFOs with longer career prospects do not engage in EM and use IPOs as an accelerating factor for their career.

Our study is also closely related to the work of Aier et al. (2005), Chava and Purnanandam (2010), Jiang et al. (2010), Feng et al. (2011), Bedard et al. (2014), Friedman (2014), Pae et al. (2015), Hoitash et al. (2016), Florackis and Sainani (2018), Mobbs (2018), Cai et al. (2018) and Florackis and Sainani (2020). Bedard et al. (2014) document that firms with their CFOs on the board are related to higher quality of financial reporting. Hoitash et al. (2016) suggest that accountant CFOs are negatively related to investment. Florackis and Sainani (2020) find that companies can improve their financial reporting quality when they have resistant CFOs. Our study expands and complements these studies by showing that CFO career prospects play an important role on newly public firm's financial

² The only exception is the work of Brau et al. (2006) but this study examines the effect of CFO perceptions on IPOs through a survey.

reporting quality. Cai et al. (2018) examine whether and how CEO's job security concern affects earnings management. We differentiate from this study by choosing to investigate the role of the executive who is in charge of firm's financial reporting on a setting which they have strong incentives to manipulate the earnings, such as in IPOs.

2. Background and Hypotheses Development

2.1 IPOs and Earnings Management

IPOs constitute an interesting context to examine the association between earnings management and CFO career prospects for several reasons. First, newly listed firms have incentives to engage in income-increasing EM to ensure that the issues are priced high to raise more money. Furthermore, the IPO process is characterized by a high level of information asymmetry between managers and investors (e.g., Teoh et al., 1998a; Gounopoulos and Pham, 2017).

Prior literature provides evidence that newly public firms engage in accrual manipulation to increase reported earnings around the IPO (Teoh et al. 1998b; Wongsunwai, 2013; Gounopoulos and Pham, 2017). Despite the extensive research on accrual EM and IPOs, there has been little research investigating whether IPO firms engage in real earnings management. Graham et al. (2005) find that top executives prefer managing earnings through real activities rather than accruals because manipulating earnings is easier to be detected by auditors and attract regulatory scrutiny. Darrough and Rangan (2005) show that IPO firms reduce research and development (R&D) expenses during the issue year to increase reported earnings. Ball and Shivakumar (2008) document that newly public firm are more conservative, that is, IPO firm do not engage in earnings overstatements, while Cohen and Zarowin (2010) find that companies engage simultaneously in real and accrual EM during the seasoned equity offering year. Gao et al. (2017) show that institutional investors' bid prices are negatively associated with pre-IPO accrual-based earnings management.

In addition, some of the prior studies indicate that the level of EM can be explained by various firm- and CEO-level factors, such as firm size, firm performance, media news, corporate governance, and CEO reputation, financial expertise and turnover (e.g., Francis et al., 2008; Hazarika et al., 2012; Gao et al., 2018; Gounopoulos and Pham, 2019) as well as by external parties, such as institutional investors, auditors, regulators, reputable underwriters, investors, venture capitalists, and credit rating agencies (Graham et al., 2005; Roychowdhury, 2006; Cohen et al., 2008; Lee and Masulis, 2011; Morsfield and Tan, 2006; Wongsunwai, 2013; Gao et al., 2017; Gounopoulos and Pham, 2017). Surprisingly, research on the influence of CFO career prospects on earnings quality around IPOs is scarce.

2.2 Hypotheses Development

2.2.1 Signaling and Rent Extraction Perspective

A strand of literature advocates that top managers with long career prospects concern more about their future career compared to those with low career prospects and engage in earnings manipulation to meet performance expectations or for their immediate personal financial gain. For example, Huang et al. (2012) support that young managers are positively related to firms meeting or beating analyst earnings forecasts and restatements. Yu et al. (2014) and Bae et al. (2015) argue that CEOs in the early years of their tenure have more incentives to favorably guide market's perception of earnings downwards to increase the likelihood of meeting or beating the expectations. Karpoff et al. (2008) suggest that there are numerous negative consequences (e.g., dismissal) to managers for financial misrepresentation. As such, if managers do actions to extract rents from their companies, then these benefits may distract them from effectively running the company, and this may worsen the quality of financial reporting.

However, managers may also engage in accounting manipulation not only to meet targets but also because they seek immediate personal financial benefit. Prior research has mainly focused on the

incentives of CEOs to engage in accounting manipulations (e.g., Bergstresser and Philippon, 2006; Burns and Kedia, 2006) and only a few studies explore the incentives of CFOs to engage in earnings management (e.g., Jiang et al., 2010; Feng et al., 2011; Florackis and Sainani, 2020). For instance, Bergstresser and Philippon (2006) find that CEOs with compensation which is dependent on the value of stock and option grants are more likely to manipulate earnings. On the other hand, Jiang et al. (2010) show that CFO equity incentives are stronger related to accruals than those of CEO. Florackis and Sainani (2020) also document that firms with non-resistant CFOs are more likely to engage in earnings management.

Prior literature also suggests that CFOs might pursue self-interest under certain conditions. The work of Bedard et al. (2014) is the only one to provide preliminary findings on such self-seeking behavior of the CFO. Specifically, they find that CFOs who are board members entrench themselves. Some of prior research examines earnings management surrounding CEO changes, and supports that one possible explanation for top managers to engage in earnings management is their concerns about job security. For example, Guan et al. (2005) find that firms with departing CEOs have higher level of discretionary accruals.³

Thus, the rent extraction perspective supports that CFOs with long-career prospects overemphasize their personal career enhancement and thus, are more likely to engage in actions (e.g., accounting manipulation) which may worsen the quality of the earnings. The previous discussion leads to the following hypothesis:

H1 (Rent Extraction Hypothesis): CFOs with high career prospects are more likely to engage in earnings manipulation.

³ However, Matejka (2007), Feng et al. (2011) and Bishop et al. (2017) argue that CFOs are also involved in accounting manipulations because they succumb to pressure from CEOs, rather than because they seek immediate personal financial benefit.

2.2.2 Reputation Perspective

Another strand of literature suggests that young managers in early stage of tenure have longer career prospects and are more likely to avoid any chance of being assessed negatively than long-tenured executives who tend to less prioritize such behaviour (Holmstrom, 1999). These managers have more to lose, in terms of reliability and future remuneration if they systematically portray their company in a more favourable situation than the current economic circumstances.⁴

According to the reputation perspective, top executives with significant reputations at stake or young executives with high career concerns who prefer to build their reputation are often based on the success of their firms during their services (Harris and Helfat, 1997; Hayward et al., 2006) and will probably not engage in opportunistic rent-seeking behavior (e.g., Fama, 1980; Francis et al., 2008). In addition to that, young manager with long career prospects lack of firm-specific human capital (reputation), and as such, they face greater labor market scrutiny if they make a bad decision, which could significantly compromise their future career opportunities (e.g., potential promotions, disapproval from one's peers and outside employment opportunities) (Hirshleifer and Thakor, 1992; Ward et al., 1995; Holmstrom, 1999).⁵

Recent evidence also shows that the capital market effects of poor earnings quality have numerous negative consequences. Francis et al. (2004) and Francis et al. (2008) show that companies with low earnings quality have higher cost of equity capital than companies with high earnings quality. In a similar vein, Kim and Sohn (2013) document that a positive association between real earnings management and cost of capital, while Strobl (2013) finds that earnings management can affect a firm's cost of capital despite the stages of the business cycle.⁶ As such, we expect that this

⁴ This perspective builds on Fama's 1980 model, where observers utilize a manager's prior record to test their credibility.

⁵ On the other hand, top executives whose companies sacrifice performance (e.g., earnings manipulation) during their service for greater awards after their departure, will face credibility and mismanagement issues (Matta and Beamish, 2008).

⁶ Furthermore, Aboody et al. (2005) show that accruals are associated with higher cost of equity and debt capital. On the basis of the above results, we argue that if CFOs with high career concerns influence earnings quality to make reported earnings look good to secure their positions, cost of capital increase.

kind of career-oriented behavior should especially hold for the CFOs, as she is the firm's internal financial expert, which should provide them with the necessary leeway to advocate decisions that avoid actions which result in higher costs of capital for their firms and boost their career.

Thus, we predict that long-career prospect CFOs are less likely to take actions that result in poor earnings quality due to the potential job termination, reputation damage and higher cost of capital for their firms. The previous discussion leads to the following hypothesis:

H2 (Reputation Hypothesis): CFOs with high career prospects are less likely to engage in earnings manipulation.

3. Sample Selection Procedure and Methodology

Our sample selection starts with identifying all of the IPOs between 2000 and 2017 in the Thomson ONE Banker database. Following the common filtering criteria in the IPO literature (Lowry et al., 2017; Chang et al., 2017; Colak et al., 2020), we eliminate financial institutions, American Depository Receipts (ADRs), closed-end funds, reverse leveraged buyouts (LBOs), unit offers, and any other non-common stock type of shares. In addition, we eliminate any IPOs with offer price below \$5. We obtain IPO background and issuance information from the Thomson ONE Banker, including the issue data, offer price, total proceeds raised, whether the firm is backed by venture capital and the details of the underwriters involved. For the underwriter prestige ranking, the study employs Carter and Manaster (1990) underwriter reputation ranking which are updated by Loughran and Ritter (2004). Accounting data are retrieved from the Compustat database, and public trading prices are from the Center for Research and Security Prices (CRSP).

In the next step, we manually search for the CFO name of each IPO firm using the S-1 filings available in SEC's Electronic Data Gathering Analysis and Retrieval System (EDGAR) in order to extract CFO biographical information (e.g., age, tenure, education) and the BoardEx database for

information about their prior work experience. In doing so, we follow a conservative approach and discard firms without CFOs and firms with missing data about their financial executives. Our final sample consists of 1,215 IPOs with complete data.

3.1 Methodology and Control Variables

3.1.1 Accrual-based Earnings Management

Following prior research, we use the modified Jones (1991) model described in Dechow et al. (1995). We first estimate the following Jones model cross-sectional regression for each year for all firms in the same two-digit SIC industry:

$$\frac{TACC_{i,t}}{TA_{i,t-1}} = \beta_0 \frac{1}{TA_{i,t-1}} + \beta_1 \frac{\Delta SALES_{i,t}}{TA_{i,t-1}} + \beta_2 \frac{PPE_{i,t}}{TA_{i,t-1}} + \varepsilon_{i,t} \quad (1)$$

Where $TACC_{i,t}$ is total accruals computed as earnings before extraordinary items and discontinued operations less cash flow from operations; $TA_{i,t-1}$ is lagged total assets; $\Delta SALES_{i,t}$ is the change in total sales from the fiscal year before the offering to the fiscal year of the IPO; and $PPE_{i,t}$ is the gross value of property, plant, and equipment. All variables are winsored at the 1 and 99 percentile level to mitigate the influence of outliers. We require at least 10 firms in an industry, in a year to run the regressions. This method helps us to control for changes in economic conditions for specific years and industries that may influence total accruals independent of any managerial manipulation. The coefficient estimates from Eq. (1) are then used to estimate the expected component of total accruals (NACC) for the IPO sample as follows:

$$NACC_{i,t} = \widehat{\beta}_0 \frac{1}{TA_{i,t-1}} + \widehat{\beta}_1 \frac{\Delta SALES_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}} + \widehat{\beta}_2 \frac{PPE_{i,t}}{TA_{i,t-1}} \quad (2)$$

Where $\Delta REC_{i,t}$ is the change in receivables from the fiscal year before the offering to the fiscal year of the IPO. The abnormal accruals ($DACC_{i,t}$) are computed as the difference between total accruals and expected accruals:

$$DACC_{i,t} = \frac{TACC_{i,t}}{TA_{i,t-1}} - NACC_{i,t} \quad (3)$$

Several studies raise the concerns that the abnormal accruals measured using the Jones model are correlated with firm performance; therefore, the Jones model is misspecified when being applied to firms experiencing extreme performance (Dechow et al., 1995). To address this issue, we also repeat the analysis by applying the method suggested by Kothari et al. (2005) to match abnormal accruals of each IPO firm with a non-IPO firm in the same two-digit SIC industry and year with the closest prior-year ROA.⁷ The matched firm's abnormal accruals are deducted from the IPO firm's abnormal accruals to yield the performance-matched abnormal accruals for the IPO firm.

3.1.2 Real Earnings Management

Following prior studies, we measure our real earnings management proxies based on models of REM developed by Dechow et al. (1998) and applied by Roychowdhury (2006). Hence, we rely on the three methods proposed by Roychowdhury (2006) to compute our real EM proxies: (i) abnormal cash flow from operations, (ii) abnormal production costs, and (iii) abnormal discretionary expenses.

The normal level of cash flow from operations is expressed as a linear function of sales and change in sales in the current period:

$$\frac{CFO_{i,t}}{TA_{i,t-1}} = \beta_0 \frac{1}{TA_{i,t-1}} + \beta_1 \frac{SALES_{i,t}}{TA_{i,t-1}} + \beta_2 \frac{\Delta SALES_{i,t}}{TA_{i,t-1}} + \varepsilon_{i,t} \quad (4)$$

⁷ We exclude firms whose matched non-IPO firm has ROA outside the range +/- 10% of the IPO firm's ROA.

Where $CFO_{i,t}$ is cash flows from operation, $TA_{i,t-1}$ is lagged total assets, $SALES_{i,t}$ is total sales, $\Delta SALES_{i,t}$ is the change in sales from the fiscal year before the issue to the fiscal year of the IPO.

The model for normal production costs is estimated as a function of current sales, change in current sales, and change in past sales:

$$\frac{PROD_{i,t}}{TA_{i,t-1}} = \beta_0 \frac{1}{TA_{i,t-1}} + \beta_1 \frac{SALES_{i,t}}{TA_{i,t-1}} + \beta_2 \frac{\Delta SALES_{i,t}}{TA_{i,t-1}} + \beta_3 \frac{\Delta SALES_{i,t-1}}{TA_{i,t-1}} + \varepsilon_{i,t} \quad (5)$$

Where $PROD_{i,t}$ is the production costs computed as the sum of the cost of goods sold and the change in inventory from the fiscal year before the IPO to the fiscal year of the issue. $\Delta SALES_{i,t-1}$ is the change in sales from the fiscal year two years before the issue to the fiscal year prior to the IPO.

The normal discretionary expenses are expressed as a linear function of lagged sales:

$$\frac{DISEXP_{i,t}}{TA_{i,t-1}} = \beta_0 \frac{1}{TA_{i,t-1}} + \beta_1 \frac{SALES_{i,t-1}}{TA_{i,t-1}} + \varepsilon_{i,t} \quad (6)$$

Where $DISEXP_{i,t}$ is the discretionary expenses computed as the sum of SG&A, R&D, and advertising expenses. $SALES_{i,t-1}$ is total sales in the fiscal year prior to the IPO.

Firms that engage in these real EM activities to overstate earnings tend to have lower abnormal cash flow from operations, higher abnormal production costs, and lower abnormal discretionary expenses. All the three equations (4), (5), and (6) are estimated cross-sectionally for each industry-year with at least 10 observations. We winsorise all variables at the 1 and 99 percentile level to mitigate the issue of outliers. The abnormal level of each real EM proxy is calculated as actual level minus the normal level estimated using the coefficients from the regressions (4), (5), and (6). We also multiply the estimated abnormal cash flow from operations and abnormal discretionary expenses by negative one, so that the higher these values the more likely it is that the firm is engaging in real EM.

To measure the total effect of real earnings management, we follow Cohen and Zarowin (2010) and Zang (2012) and compute the aggregate effect of all three measures by calculating two combined measures REM1 and REM2. REM1 is the sum of abnormal production costs and abnormal discretionary expenses and REM2 is the sum of abnormal cash flow from operation and abnormal discretionary expenses. The higher REM1, the more likely that firms increase production and cut discretionary expenses to manipulate earnings upward. In the similar spirit, a high value of REM2 indicates that IPO firms manipulate sales and cut discretionary expenses to increase reported earnings.

3.2 Model Specification

The major focus of this study is to estimate the relation between CFO career prospects and earnings quality. Our model takes the following form:

$$Earnings\ Quality = \beta_0 + \beta_1 CFO\ DH + \beta_2 Control\ Variables + Fixed\ Effects + \varepsilon_i \quad (7)$$

Our dependent variable, is an earnings management proxy including discretionary accruals, abnormal accruals, abnormal cash flow from operations, abnormal production costs, abnormal discretionary expenses, REM1, and REM2. The main variable of interest is the CFO decision horizon (*CFO DH*) which is used as the proxy for CFO career prospects, following Antia et al. (2010) and Lee et al. (2018). According to Holmstrom (1999), the younger the manager is, they higher career prospects she seems to have. He also supports that in early stage of tenure, young executives have longer career prospects and are more likely to avoid any chance of being assessed negatively, while executives in late stage of tenure tend to less prioritize such behavior.

We control for several offering, company, CEO and CFO characteristics that prior literature identifies as potential determinants of EM. These variables are included into our regression models to help to isolate the effect of CFO career prospects and rule out alternative explanations. Following prior literature (Francis et al., 2008; Laux and Laux, 2009; Feng et al., 2011; Brown, 2015; Harris et

al., 2019), we control for several CEO and CFO characteristics such as the CEO age and tenure (*CEO DH*), prior work experience of the CFO (*No. Roles and No. Firms*), *CFO gender* and CEO compensation (*Total CEO Pay*). We also follow Baolei et al. (2018) and Gounopoulos et al. (2020) and add several CFO variables to our baseline OLS model to control for CFO education attainments (*CFO Ivy League*, *CFO MBA*, and *CFO Qualified Accountant*).

Our next variable accounts for the quality of corporate governance mechanisms. Specifically, we follow Laksmana (2008) and construct a variable (using principal component analysis) which captures several aspects of corporate governance, such as the degree of director independence in the board and in the nomination committee, the number of directors that were in place before the incumbent CEO, and the size of the board (*Governance Quality*). Fan et al. (2020) show that high governance quality improves financial reporting. As such, we expect that well-governed firms to be negatively related to earnings manipulation.

We also control for the effects of firm financial strength and performance by using leverage (*Leverage*) and earnings per share (*EPS*). Brown (2015) shows that firms with high leverage levels engage more in earnings management. Furthermore, we follow Gounopoulos and Pham (2019) and include firm age (*Firm Age*) as an additional control variable. In addition, we include total assets to control for the influence of firm size (*Size*). We expect that larger firms are under higher scrutiny from regulators, and this may discourage top executives to manage earnings.

Additionally, financial intermediaries and accountants participating in the IPO process can be also important determinants of earnings management around IPOs. Particularly, Gounopoulos and Pham (2017) document that venture-backed firms are negatively related to EM. Lee and Masulis (2011) find that firms with prestigious underwriter are positively associated with earnings management, while Jo et al. (2007) find that firms with highly prestigious underwriters are less likely to engage in earnings manipulation. With respect to audit quality, prior empirical studies (e.g., Gul et al., 2009) have reported that firms audited by Big N discourage top managers from manage earnings.

Thus, we include the presence of venture capitalists (*VC*), underwriter prestige (*High Underwriter*), and whether the firm is audited by a big four company (*Big 4 Auditor*) to capture the impact of the above financial intermediaries on earnings quality around IPOs.

Lastly, we consider whether EQ around IPOs depend on the nature of riskiness of each firm and capture this effect by including two dummy variables which indicate whether firms belong to the technology (*Technology*) and internet (*Internet*) sectors or if it is listed in *Nasdaq*. Furthermore, following Cao and Shi (2006), Petersen (2009) and Liu and Ritter (2011) we include both year and industry fixed effects in the model to mitigate for potential omitted variable problems and standard errors are clustered at the year- and industry-level.⁸ A detailed definition of variables is provided in Appendix A.

4. Empirical Results

4.1 Descriptive Statistics

Table 1 presents the distributional statistics for the number of IPOs and their distribution across the high and low CFO decision horizon groups. Panel A of Table 1 focuses on the time-series dimension, while Panel B reports the cross-industry variability of IPOs. Panel A displays that the number of newly listed firms tend to decline from 2001 to 2009, as a result of the internet bubble and the financial crisis. This pattern changes after 2010 and an explanation of this trend is due to the JOBS Act. In a similar vein, the level of CFOs decision horizons has a decreasing trend which means the IPO firms prefer to hire old CFOs with long tenure.

Panel B classifies IPOs and the values of CFO decision horizon across industries and shows a high concentration of IPOs in the computer equipment and services and chemical products sectors. The entertainment services and manufacturing sectors have the lowest representation of IPO firms. Consistent with the IPO activity, manufacturing industry has the lowest level of CFO decision

⁸ It should be noted that every privately-owned firm goes public only once.

horizon, while electronic equipment sector has the highest level of CFO decision horizon, which indicates that this sector has younger CFOs with short tenure.

Table 2 provides descriptive statistics for the subsample of high and low CFO decision horizon. Panel A describes the CFO and CEO profiles across all the high and low CFO DH sub-samples. On average, the CFO is 48 years old with tenure of two years, has worked for five firms in finance or accounting related role and four different finance related positions (e.g., auditor, director of finance, VP finance, CFO). In addition, 14% of CFOs has received their undergraduate, master's, or doctoral degrees from a university classified as an Ivy League university, more than 40% holds an MBA degree, and more than one third holds a professional financial or accounting qualification (e.g., ACCA, CPA, or CIMA). The 65% of CEOs hold also the chair position, their age is 51 years old and the average total CEO compensation is \$1,518 million. Finally, CFOs in the low sub-samples tend to have worked in more firms than CFOs in the low regimes, while CFOs with high career prospects tend to be more in firms with less generous compensated CEOs.

Panel B displays the firm and IPO characteristics for the overall sample and the sub-sample of firms with high CFO DH and low CFO DH. On average, almost the half of the firms has positive EPS and around 40% of the IPOs belong to the high-tech industry. In addition, the average age of IPO firms is 13 years and 84% are audited by the Big 4 accounting firms. Around 57% of the firms are VC-backed and 40% of them are underwritten by top-tier investment banks. Furthermore, our findings indicate that, firms with low CFO DH tend to be older with prestigious underwriters and better governance quality.

Panel C of Table 2 demonstrates the summary statistics for the EM measures. In this case, we follow Gounopoulos and Pham (2018) and rely on medians for statistical inferences because medians are less likely than means to be influenced by outliers. The median value of abnormal accruals (-0.04) is negative, suggesting that IPO firms are less likely to engage in income-increasing accrual-based EM. With respect to real EM, IPO firms have negative abnormal cash flow from operations (-0.02),

abnormal discretionary expenses (-0.05), and REM2 (-0.05) but positive abnormal production costs (0.29) and REM1 (0.21). This demonstrates that IPO firms are inclined to overstate earnings through production decisions but are conservative in discretionary expense decision and sales manipulation. Panel C also demonstrates clearly that firms with high CFO DH tend to have lower earnings management, providing thus, preliminary support to our main hypothesis.

4.2 The Effect of CFO Career Prospects on Earnings Management

Table 3 presents the results of our analysis of the association between accrual-based EM and CFO career prospects after controlling for various firms, CEO, and CFO characteristics that may influence earnings management. All specifications, apart from column (3) and (4) of Panel A show strong and negative coefficients for CFO decision horizon, suggesting that IPO firms with CFOs who have high career prospects are less likely to engage in income increasing earnings management. This finding supports the *reputation hypothesis* that IPO firms with long-career prospects CFOs have fewer probabilities to engage in EM than the others, in order to secure their position, protect their prestige and increase their job opportunities. The economic effect is meaningful: the magnitude of the coefficient estimate of CFO decision horizon in the second model is -0.01, suggesting that a one standard deviation increase in CFO decision horizon is associated with a 9.88% decrease in abnormal accruals.

The findings pertaining to the control variables are interesting in their own right. In a similar spirit, we find that firms held by CEOs with high prospects are less likely to manage earnings but the magnitude is much lower than that of CFOs. Our results suggest that CFOs with finance or accounting related degrees (such as MBA, ACCA, or CIMA) and those who have worked in many different roles do not engage in accounting manipulation. In line with Fan et al. (2020), we find that well-governed firms are negatively associated with earnings management.

We also obtain positive and significant coefficients on Big 4 auditor. These findings contradict with those of Gounopoulos and Pham (2019), as they do not find any impact of Big 4 auditor on earnings management. Financial intermediaries seem to play a key role as those firms with a prestigious underwriter as well as with the presence of venture capitalist are negatively related to EM. Finally, our findings indicate that risky firms tend not to engage in EM, while old firms as well as those with positive earnings are positively related to earnings manipulation.

5. Identification Concerns

The results, so far, establish a negative association between CFO career prospects and earnings management. It is possible, however, that endogeneity issues may plague our empirical analysis. Specifically, our models may be suffered from bias due to: i) omitted firm, and/or CFO variables that affect both earnings management and the CFO decision horizon of IPO firms in a similar manner, and ii) endogenous CFO-firm matching (i.e., non-random assignment of CFOs to the firms) due to observable distributional differences in firm and CFO characteristics between firms with high and low CFO career prospects. In the following subsections, we attempt to provide some evidence inconsistent with endogeneity and that the CFO DH-EM relationship is causal.

5.1 Two-Stage Least Squares

We consider the scenario under which an unobserved variable that is not necessarily fixed, affects our independent variable (CFO career horizon) as well as the dependent variable (EQ). To mitigate reverse causality concerns, we employ a two-stage instrumental variable (IV) analysis. To overcome this challenge, we use three instruments which reflect the employment opportunities in the state and industry in which the firm operates.

We firstly follow Chemmanur et al. (2019) and Chen et al. (2018) and instrument for career prospects (as measured by CFO DH) using an exogenous shock to the supply of new managers available for hire by a company. Our first instrument is the number of acquisitions in the industry and the state of the sample firm three years beforehand, weighted by an index that measures the enforceability of non-compete clauses in that state, aggregated to the national level (*Outside Employment Opportunities*).⁹

The rationale for this instrument is that if CFOs are intentionally selected because of an identified characteristic that the board of directors prefers for its company, we could expect boards to be more successful, when there is a relatively large and diverse pool of CFOs from which to choose. Thus, the quality of the firm–CFO match depends on the depth of the pool of potential candidates, which, in turn, is a function of local labor-market frictions, as reflected in the degree of managerial mobility within the industry and the state.

We expect that higher values of the *Outside Employment Opportunities* variable translate to a lower chance of optimal matching between CFOs and firms, which in turn, implies a negative relation between this instrument and CFO DH. Most importantly, we believe that this instrument is likely to satisfy the exclusion criterion since both of its multiplicative components are unlikely to be associated with the firm’s earnings quality (Hoitash and Mkrtchyan, 2018; Chemmanur et al., 2020).¹⁰

Following Antia et al. (2010), we also employ the proportion of other companies that are larger than the company in the same industry-year (*ISIZE*) and the proportion of other CFOs who are paid more than the CFO in the same industry-year (*ICFOCOMP*) as instruments for CFO career prospects. Both *ISIZE* and *ICFOCOMP* reflect better employment opportunities in the industry, which are unlikely to be affected individual firms, and hence they will not have a direct impact on EQ (but

⁹ Prior literature shows that the high enforceability of these non-compete clauses constrains employees’ mobility, including those of managers (e.g., Garmaise, 2011; Kini et al., 2019). For instance, Custodio et al. (2017) utilize the same instrument as in our study to identify exogenous variation in the degree of mobility in the external labor market.

¹⁰ Following Chemmanur et al. (2020) and Gounopoulos et al. (2020), in both the first and second stages of our IV regressions, we explicitly control for the total number of acquisitions in the sample firm’s industry 3 years beforehand ($\text{Acquisitions}_{j,t-3}$).

only through CFO career prospects). In particular, we expect that when there are more job opportunities in the industry, a CFO will more likely to engage in a long-term strategy in order to increase her chances for external job opportunities in the future.¹¹ As such, we expect that these instruments to be positively correlated with the CFO decision horizon, thus satisfying both the relevance and exclusion criteria.

5.1.1 Two-Stage Least Squares Results

In the first-stage, we estimate a model in which the dependent variable is CFO career prospects, whereas in the second-stage, we replace the hypothesized endogenous variable with its predicted (instrumented) value. The results from the first stage regression are presented in Column (1) of Table 4. Our findings show that CFO DH is negatively related to Outside Employment Opportunities, while it is positively and significantly associated with ISIZE and ICFOCOMP. The above finding are consistent with the notion that consistent with the notion that when there are more job opportunities in the industry, a CFO will more likely to engage in a long-term strategy in order to increase her chances for external job opportunities in the future. We also find that CFO DH is positively affected by ISIZE and ICFOCOMP, which shows that younger CFOs with short tenure are compensated less than the other CFOs in the same industry and work in smaller firms than others in the same industry.

Furthermore, we perform numerous tests to ensure the relevance and validity of our instruments. The Kleibergen-paap rank Wald F-statistics exceed 10 which is the critical value derived from Stock and-Yogo's test, which does not support the idea that our instruments are weak. The Hansen (over-identification) J-test is not significant, failing to reject the null hypothesis that the instruments jointly satisfy the exclusion restriction. Finally, the test statistic for the Hausman exogeneity test is significant for some measures of EM (APROD, ADISEXP, REM1 and REM2)

¹¹ Our instruments are based on the Fama-French 17 industry classification.

indicating that we can reject the hypothesis that DH is exogenous and the IV results are more consistent than OLS results. Columns (2) to (8) of Table 4 report the second-stage results. Our findings are consistent with our main results, suggesting that CFOs with longer career prospect are less likely to engage in earnings management.¹²

5.2 Propensity Score Matching

CFOs and firms are not matched randomly. For example, it may be the case that firms that do not engage in earnings manipulation tend to hire CFOs who are long-term oriented in their decision making process. As Panel B of Table 2 presents, CFOs with high DH tend to work in young and internet firms with top-tier investment banks. However, our findings might be driven by the above tendencies. Hence, we initially perform the propensity score matching analysis to ensure that our results are not caused by the distribution differences in CFO and firm characteristics between firms with CFOs with high versus low career prospects. This method involves the creation of pairs that are comparable for all covariates but differ only in value of CFO career prospects.

We firstly run a probit regression to estimate the propensity scores. For each treatment firm with high CFO DH, we select a matching control firm with low CFO DH, with the condition that the absolute difference in the propensity score between each pair does not excess 0.01. We employ this method without repetition and estimate the propensity score for each firm, after considering a set of controls that essentially capture all the CFO and firm characteristics used in the baseline regression.

This method yields 646 unique pairs of firms, i.e., approximately 53% of the initial sample. Panel A of Table 5 displays difference-in-difference means of the control variables for firms with CFOs with high versus low decision horizon for both matched samples. The results show that the corresponding difference-in-difference means are not statistically significant for the matched sample, indicating that the propensity score matching succeeds in making the sample of firms with high CFO

¹² In second-stage results, we use the instrument CFO DH from Column (3) in Panel A.

DH comparable to the sample with low CFO DH.¹³ Based on the matched set of treatment and control firms, we initially re-run the OLS models of Table 3 and then employ PSM on the matched sample. Our results in both cases (Panels B and C of Table 5) confirm the negative relationship between CFO DH and earnings management.

5.3 Entropy Balancing Approach

Although PSM offers an effective approach to address endogeneity concerns, results from this method can be sensitive for many reasons. First, PSM is sensitive to matching parameters that can alter the conclusions, such as weight of 0 or 1, choice of the caliper width, matching with or without replacement of the number of control firms matched to treatment firms. Moreover, it has lower model efficiency and more first-stage model dependency, and finally, it is affected by the lower statistical power of a reduced sample size (Hainmueller, 2012; Hendricks et al., 2019).

Thus, to corroborate our propensity score matching analysis, we also utilize a robust multivariate matching technique known as entropy matching, that weights each observation such that post-weighting distributional properties of treatment (high CFO DH) and control (low CFO DH) samples are equal, thereby ensuring covariate balance (Hainmueller, 2012; Jacob et al., 2018; Chapman et al., 2019; Hendricks et al., 2019). Another advantage of this method is that it preserves the entire sample, thus retaining information and improving model efficiency.¹⁴ Using this approach, we next run the same regressions as in Table 3 and find that the results using the entropy-balanced control sample are in line with those our baseline findings (Panel D of Table 5).

6. Robustness Analysis

6.1 Alternative Measures for Earnings Quality

¹³ Following the same procedure for the other measures for EM, our results remain the same.

¹⁴ The study of Hainmuller and Xu (2013) provides a complete guidance of how you can implement this method on Stata.

In the baseline analysis, we adopt the modified Jones (1991) model and the performance-matched accruals model (Kothari et al., 2005) to investigate the association between CFO career prospects and earnings management. For robustness, we repeat the main analysis using discretionary current accruals as an alternative proxy for earnings management (Dechow and Dichev, 2002) because prior research shows that most accruals variation is driven by current accruals (Dechow, 1994; Teoh et al., 1998a; Teoh et al., 1998b). We further consider the impact of long-term accruals by adding sales growth and PPE to respectively reflect firm performance and depreciation. Specifically,

$$\frac{TCA_{i,t}}{TA_{i,t-1}} = \beta_0 \frac{1}{TA_{i,t-1}} + \beta_1 \frac{CFO_{i,t-1}}{TA_{i,t-1}} + \beta_2 \frac{CFO_{i,t}}{TA_{i,t-1}} + \beta_3 \frac{CFO_{i,t+1}}{TA_{i,t-1}} + \beta_4 \frac{\Delta SALES_{i,t}}{TA_{i,t-1}} + \beta_5 \frac{PPE_{i,t}}{TA_{i,t-1}} + \varepsilon_{i,t} \quad (8)$$

where

$$TCA_{i,t} = (\Delta CA_{i,t} - \Delta Cash_{i,t}) - (\Delta CL_{i,t} - \Delta STD_{i,t})$$

$$CFO_{i,t} = NIBE_{i,t} - (TCA_{i,t} - DEP_{i,t})$$

where $TCA_{i,t}$ is total current working capital accruals; $TA_{i,t-1}$ is lagged total assets; $CFO_{i,t}$ is operating cash flows; $\Delta SALES_{i,t}$ is change in sales; $PPE_{i,t}$ is property, plant and equipment in gross value; $\Delta CA_{i,t}$ is change in current assets; $\Delta Cash_{i,t}$ is change in cash; $\Delta CL_{i,t}$ is change in current liabilities; $\Delta STD_{i,t}$ is change in short-term debt; $NIBE_{i,t}$ is net income before extraordinary items; $DEP_{i,t}$ is amount of depreciation and amortization. The predicted value from Eq. (8) equals to non-discretionary current accruals. We use the residuals which equals to the discretionary current accruals to proxy for earnings management.

We also use financial misstatements to capture earnings quality, which is a dummy variable equal to one if firm's financial statement for the offering year is restated (Armstrong et al., 2013). This measure is related to our research question as it deals with CFOs and prior research also discusses its negative effects on the firm's ability to raise capital and top executives career (Hribar and Jenkins, 2004). In addition, firms strive to repair reputation damage in the wake of restatements (Chakravarthy et al., 2014). In Panel A of Table 6, we find that the choice of earnings quality

measures does not change our findings with regard to the negative relationship between CFO career prospects and earnings EQ.

6.2 Alternative Measures for CFO Career Prospects

In this subsection, we investigate whether our results are robust to alternative definitions of CFO career prospects. When examining the existence of a systematic relationship between CFO career prospect and earnings management, we follow Antia et al. (2010) and use the definition of CFO decision horizon to define the CFO career prospects. In particular, we use a continuous variable created by using both the CFO tenure and CFO age which are industry-adjusted. Alternatively, we could define CFO career prospects as a dummy variable equal to one if the CFO age and tenure is above the sample median, and zero otherwise (Gibbons and Murphy, 1992; Chevalier and Ellison, 1999).

Panel B of Table 6 presents the effect of CFO career prospects on EM by using an alternative measure of CFO career prospects. Our results in Panel B are consistent with our prior findings. The economic effects are significant: the coefficient on CFO career prospects in specification (2) is -0.07, indicating that firms led by CFOs with high career prospects are related to a 7% decrease in abnormal accruals.

7. Cross-Sectional Analysis

The evidence documented so far predicts a lower likelihood for IPO firms with younger and short-tenured CFOs to report inflated earnings. In this section, we further investigate how the negative association between CFO career prospects and earnings management is pronounced or weakened due to cross-sectional variations of internal and external monitoring, product market competition, CFO incentives and IPO financial intermediaries.

7.1 Internal and External Monitoring

Several studies argue that effective board governance could constrain income-increasing earnings management behavior and deliver better firm performance (Klein, 2002; Peasnell et al., 2005). Specifically, Beasley (1996) states that firms with board composed of large proportions of outside directors are less likely to commit financial statement fraud. Other board characteristics such as number of directorships held by directors in other firms and board meeting frequency are also found to be related to decreased level of discretionary accruals (Xie et al., 2003).

Prior literature suggests that CEOs have power to exert pressure on their subordinates and alter financial related decisions to pursue personal interests. Feng et al. (2011) find that powerful CEOs with high equity incentives could drive the choice of CFOs to engage in earnings manipulation. However, another strand of the literature documents that apart from the internal monitoring through the corporate governance quality, institutional ownership can also play an important role in monitoring managers. (Chen et al., 2007). For example, Sakaki et al. (2017) document that firms with institutional ownership are negatively related to real earnings management. Following this stream of literature, we utilize a series of institutional-ownership concentration to proxy for external monitoring.¹⁵

Therefore, we expect that the suppressed influence of CFO career prospects on earnings management is more pronounced in IPO firms with stronger corporate governance. Moreover, we expect internal governance to be more effective in constraining the extent of real earnings management when CEOs are less powerful. Finally, we predict that the effectiveness of CFO career prospects increases with institutional ownership. Consistent with our expectations, our results in Panel A of Table 7 demonstrate that the negative association between CFO career prospects and EM is stronger among firms with greater monitoring (governance quality, non-powerful CEOs, and high institutional ownership).

¹⁵ Ownership HHI of institutional investors.

7.2 Product Market Competition

The findings on how market competition affects managerial behavior are ambiguous. On the one hand, effective competition plays a role in disciplining managers and substitutes for corporate governance. For instance, Shi et al. (2017) suggest that firms with high product market competition have lower real EM. Tang (2018) argues that intense industry competition could mitigate agency problem and align managers' interests with those of shareholders. This discipline effect implies that CFOs would be motivated to take more real efforts to deliver better performance rather than manipulate earnings. On the other hand, however, competitive pressure could also induce CFOs to misreport financial outcomes to reduce dismissal risk and the possibility of firm takeover (Bergstresser and Philippon, 2006; Markarian and Santalo, 2014).

Following Tang et al. (2018), we use the Herfindahl–Hirschman index (HHI) as a measure of product market competition.¹⁶ The regression results presented in column (3) and (4) of Panel A, Table 7 suggest that the conservative reporting inclination for CFOs with high career prospect is concentrated among firms in fiercely competitive industries, which supports the discipline function.

7.3 CFO Compensation Incentives

To remedy the adverse consequences arising from the agency problem, an increasing amount of stock-based and option-based executive compensation has been awarded to managers during the past decade. Theoretically, higher stock ownership could encourage managers to boost firm's long-term performance, thus align managers' activities with shareholders' interests (Morck et al., 1988; Hanlon et al., 2003). Recent studies, however, point out that performance-related pay could also induce managers to focus on short-term share prices and result in earnings manipulation. For example, Bergstresser and Philippon (2006) provide evidence that the larger portion of CEO's potential compensation associating with stock or option awards, the higher the level of discretionary accruals

¹⁶ The smaller the HHI, the more competitive the industry is.

could be. However, Laux and Laux (2009) suggest that an increase in executive compensation does not necessarily increase earnings management.

Given the fact that CFOs are more closely related to firms' accounting choice and financial performance, their equity incentives should have more influence on earnings management than those of CEOs. Jiang et al., (2010) state that CFO incentives play a more important role in determining the magnitude of accruals and the likelihood of beating or meeting analyst forecasts. Therefore, we predict that when CFOs have less equity incentives, the negative association between CFO career prospects and earnings management would be more pronounced. The regression results are reported in column (1) to (4), Table 7 (Panel B). The coefficient of CFO career prospects becomes insignificant when CFOs have high stock-based compensation and ownership, which supports our prediction.

7.4 Financial Intermediaries

Motivated by newly public firms' strong incentives to enhance their governance quality at the time of IPO, Baker and Gompers (2003) document that VC-backed IPO firms are associated with better corporate governance (such as more independent outside directors). Similarly, Hochberg (2012) find that VC-backed newly listed firms are related to lower levels of earnings manipulation and better corporate governance. Additionally, Wongsunwai (2011) shows that after going public, firms backed by higher quality venture capitalists are less likely to engage in earnings management, while Morsfield and Tan (2006) provide the same evidence for the newly public firms. Thus, we contend that firms with VCs restrict firms' incentives for earnings manipulation to protect their reputation and to avoid potential litigation risk.

Prior literature also shows that apart from VCs, other financial intermediaries participating in the IPO process (e.g., prestigious underwriters) play a significant role in restraining earnings manipulation. Lee and Masulis (2011) and Chen et al. (2013) suggest that top investment banks restrict firms' incentives for earnings management. Jo et al. (2007) also examine the effect of

prestigious underwriters on earnings manipulation for a sample of seasoned equity offerings and corroborate the above findings.

As such, we hypothesize that the negative effect of CFO career prospects on EM to be stronger among VC-backed firms and those with reputable underwriters. In Panel C of Table 7, we examine in which subsample the link between CFO career prospects and EM is strengthened or weakened. Our findings suggest a significant and negative association between CEO pay gap and IPO failure risk that is concentrated only among firms with VCs.

8. CFO Future after IPO

8.1 Career Prospects and CFO Turnover Probability

CFO turnover is the severance of the relationship between two parties: the firm and the executive. It is not always a unilateral decision made by the firm. However, CFO turnover in the literature is examined more from the firm's perspective than from the executive's perspective. Numerous studies examine how firms replace CFOs, but few of them have considered the decision-making on the other side: Could the CFO's own circumstance play a role in explaining the observed turnover outcome? In this section we examine the incidence of post-IPO CFO replacement that occurs within five years after the IPO.

As shown in Panel A of Table 8, more than 70% instances of CFO departure occur within five years of going public. The highest incidence of CFO departure takes place in the second and the third year following the IPO, while the lowest is found five years after the IPO. Furthermore, in untabulated analysis, we find that the post-IPO CFOs' tenure is around three years which means that the majority of the firms hire CFOs to help them to go public. Therefore, it may be interesting to investigate the effect of CFO career prospects on their post-IPO retention rate. The results in Panel B of Table 8 show that CFOs with longer career prospects have more probabilities to leave the firm. As such, it is

interesting now to explore how and if these CFO use their reputation as CFOs of newly listed firms in order to promote their career.¹⁷

8.2 Do CFOs use IPO Events to Accelerate their Career?

We now turn our attention to examine the possibility that CFOs with high career prospects do not engage in earnings management manipulations of newly listed firms to protect their reputation and be promoted in higher position in either the same firm or other public firms. To investigate this possibility, we assess the impact of CFO career concerns on the probability of promotion.

Panel A of Table 9 presents the (new) positions of CFOs from the IPO date to ten years after the offerings as well as their statistics for the subsamples of high and low CFO decision horizon. One third of the CFOs of our sample get promoted to higher positions. In particular, 6% of them remained in the same firm and in the same position, while 8% worked in the same company but from the position of the CEO. It is also remarkable that 14% of the CFOs took the position of CEO in either public or private firms in the subsequent years after the offering.¹⁸ Finally, it seems that CFOs with high career prospects tend to be promoted in the position of CEO in the same firm or in other public firms.¹⁹

To gain more insight into the effect of career concerns of CFOs of newly public firms, we estimate probit regressions for the probability of CFOs to be promoted to higher positions. Column (1) of Panel B (Table 9) demonstrates that CFOs with longer career prospects are more likely to be promoted. Specifically, our findings are mainly driven from the CFOs with high DH who took the position of CEO in a public or a private. Taken together this result and the findings from Sections 4.2 and 8.1, we conclude that CFOs use IPO event as an accelerating factor for their career and they

¹⁷ In untabulated analysis, we do not find any association between CFO career prospects and several investment measures.

¹⁸ It should be noted that either CFO in the same firm or CEO in the same firm does not mean that the firm is public. It could be either private or public.

¹⁹ Following the same procedure when the period under investigation is from the IPO date to the departure of the CFO, our results remain the same.

achieve this through the financial reporting (earnings management) channel as they prefer not to engage in earnings manipulation to protect their reputation and be promoted in higher positions.

9. Conclusion

While, Chief Financial Officers (CFOs) are in charge of financial reporting planning, the prior literature has mainly focused on the role of Chief Executive Officers (CEOs) on financial reporting. The purpose of this study is to investigate the impact of CFO career prospects on earnings management around IPOs.

In our study, we find that firms with CFOs with high career prospects are less likely to engage in earnings manipulation. In subsequent tests, we document that the association between CFO career prospects and EM is stronger among firms with internal and external monitoring. Further, we document that CFOs with high career prospects are related to higher post-IPO turnover and be promoted in higher positions in either the same firm or in other public firms in the years following the IPO.

Overall, the findings of this study suggest that CFOs seem to have greater influence than CEOs on earnings quality around IPOs. This study makes the following contributions. It adds to the literature on the impact of top executive's on earnings quality. In addition, we contribute to IPO literature on the impact of the top management team on newly listed firms.

Appendix A: Definitions of Variables

Variable	Definition
Panel A: CEO Variables	
CEO Age	Age of CEO (in years). Old CEOs are those who have age over the sample median (51) and young CEOs are those who have age lower than the sample median.
CEO Gender	Dummy variable equal to one if CEO is female, and zero otherwise.
CEO Tenure	Number of years working as CEO in the firm until the IPO. CEOs with High Tenure are defined those with tenure above the sample median.
Total CEO Pay	The logarithmic value of the sum of salary, bonus, stock and option awards, non-equity compensation and other compensation awarded to the CEO in the fiscal year prior to the IPO.
Panel B: CFO Variables	
CFO Age	Age of CFO (in years). Old CFOs are those who have age over the sample median (48) and young CFOs are those who have age lower than the sample median.
CFO Tenure	Number of years working as CFO in the firm until the IPO. CFOs with High Tenure are defined those with tenure above the sample median.
CFO Gender	Dummy variable equal to one if the CFO is female, and zero otherwise.
CFO Ivy League	Dummy variable equal to one if the CFO is graduated from an Ivy League institution, and zero otherwise.
CFO MBA	Dummy variable equal to one if the CFO is holder of an MBA degree, and zero otherwise.
CFO Qualified Accountant	Dummy variable equal to one if the CFO is qualified accountant, and zero otherwise.
No. Roles	Number of financial and accounting related roles that the CFO holds in their past work history.
No. Firms	Number of firms in which the CFO has past financial experience.
CFO Decision Horizon (DH)	$DH_{i,t} = [TENURE_{ind,t} - TENURE_{i,t}] + [AGE_{ind,t} - AGE_{i,t}]$, where $TENURE_{i,t}$ is the number of years the CFO has held that position prior to IPO, $AGE_{i,t}$ is the age of the CFO who works for firm I in year t, $TENURE_{ind,t}$ ($AGE_{ind,t}$) is the industry median of TENURE (AGE) (following Antia et al., (2010) and Lee et al., (2018)).
CFO Career Horizon	Dummy variable equal to one if CFO age is smaller than the sample median and the individual tenure as CFO throughout all of his or her career is smaller than the sample median, and zero otherwise.
CFO Turnover	Dummy variable equal to one if there is change in the position of CFO within five years after the issuing year.
CFO Incentive Compensation	The natural logarithm of the sum of stock and options granted to the CFO in the IPO year.
CFO Ownership	The number of shares plus the number of unexercised stock options beneficially held by CFO as a percentage of total shares outstanding (immediately after IPO).
Promotion	Dummy variable equal to one if the CFO promoted in a higher position after her departure from the IPO firm, and zero otherwise.
CFO other Public	Dummy variable equal to one if the CFO hired by a public firm to work as CFO after her departure from the IPO firm, and zero otherwise.
CFO Same Firm	Dummy variable equal to one if the CFO remained in the same firm, and zero otherwise.
CFO Private Firm	Dummy variable equal to one if the CFO hired by a private firm to work as CFO after her departure from the IPO firm, and zero otherwise.
CEO other Public	Dummy variable equal to one if the CFO hired by a public firm to work as CEO after her departure from the IPO firm, and zero otherwise.
CEO Same Firm	Dummy variable equal to one if the CFO promoted to the position of the CEO in the same firm, and zero otherwise.
CEO Private Firm	Dummy variable equal to one if the CFO hired by a private firm to work as CEO after her departure from the IPO firm, and zero otherwise.
CEO in a Public or a Private Firm	Dummy variable equal to one if the CFO hired by either a public or a private firm to work as CEO after her departure from the IPO firm, and zero otherwise.
Position in a Public Firm	Dummy variable equal to one if the CFO hired by public firm after her departure from the IPO firm, and zero otherwise.
Panel D: Firm, Offering and other Characteristics	
Underpricing	The difference between the first secondary market closing price available in CRSP and IPO offer price, divided by IPO offer price.
Firm age	The number of years elapsed since firm's foundation to IPO date, using foundation dates from Thomson Financial database as well as from the Field-Ritter dataset. The variable is transformed into the regressions by adding one and taking the natural logarithm.
VC	Dummy variable equal to one for venture capital-backed firms, and zero otherwise.
Proceeds	The natural logarithm of gross proceeds raised by the IPO estimated as shared offered times the offer price.
Size	The natural logarithm of total assets in the year prior to the IPO.
Underwriter	Dummy variable equal to one for most prestigious underwriters, zero otherwise. Most reputable underwriters are those with a ranking score of 9.0 or above based on Jay Ritter's underwriter (prestige) rankings.
High Underwriter	Dummy variable equal to one for underwriters with a ranking score above or equal than 7.0, and zero otherwise.
Internet	Dummy variable equal to one for IPOs of Internet firms, and zero otherwise. Internet firms are classified those with business description containing any of the words "Internet", "Online", "eBusiness", "eCommerce", and/or "Website".

Technology firm	Dummy variable: one for IPO firms with SIC codes 3571, 3572, 3575, 3577, 3578 (computer hardware), 3661, 3663, 3669 (communications equipment), 3671, 3672, 3674, 3675, 3677, 3678, 3679 (electronics), 3812 (navigation equipment), 3823, 3825, 3826, 3827, 3829 (measuring and controlling devices), 3841, 3845 (medical instruments), 4812, 4813 (telephone equipment), 4899 (communications services), and 7371, 7372, 7373, 7374, 7375, 7378, and 7379 (software).
Big 4 Auditor	Dummy variable equal to one if the firm is audited by a big four audit firm, and zero otherwise. Big four audit firms include Ernst & Young, Deloitte & Touche, KPMG, and PricewaterhouseCoopers.
Nasdaq	Dummy variable equal to one for NASDAQ-listed IPOs, and zero otherwise.
Leverage	The ratio of total liabilities over total assets in the fiscal year prior to IPO.
EPS	Dummy variable equal to one for positive earnings per share in the fiscal year prior to IPO, and zero otherwise.
Governance Quality	It is constructed by taking the first factor of applying principal component analysis to the following variables: board independence measured as the ratio of the number of independent outside directors to the total number of directors; a dummy variable equal to one if the board has a nominating committee that is composed solely of independent directors, (and zero otherwise); the percentage of outside directors on the board that were appointed after the current CEO took office; the natural logarithm of the average number of other directorships held by independent directors serving on the board; a dummy variable, equal to one if the majority of outside directors on the board serve on three or more other boards; the natural logarithm of the number of board meetings; the natural logarithm of the number of directors serving on the board.
Institutional Ownership	The amount of a company's available stock owned by mutual or pension funds, insurance companies, investment firms, private foundations, endowments or other large entities that manage funds on the behalf of others.
ISIZE	The percentage of other companies that are larger than the company in the same industry.
ICFOCOMP	The percentage of other CFOs who are paid more than the CFO in the same industry.
Acquisitions _{i, t-3}	The number of acquisitions made by established (public) companies in industry <i>j</i> in state <i>s</i> in year <i>t-3</i> .
Enforceability Index _{s,t}	An index measuring the enforceability of non-compete agreements across different US states based on Garmaise (2011) and updated from Ertimur et al. (2018).
Outside Employment Opportunities	The product $(Acquisitions_{j,s,t-3})^{-1} \times Enforceability\ Index_{s,t}$

Panel E: Earnings Quality Proxies

DACC	Discretionary accruals in the offering year, computed through the cross-sectional modified Jones (1991) model adjusted for performance.
AACC	Abnormal accruals in the offering year, computed using the modified Jones (1991) model and adjusted for the abnormal accruals of a performance-matched, non-IPO firm based on year, industry, and ROA according to the performance matching procedure suggested by Kothari et al. (2005).
AOCF	Abnormal cash flow from operations in the offering year, estimated following Roychowdhury (2006). The value is multiplied by negative one.
APROD	Abnormal production costs in the offering year, estimated following Roychowdhury (2006).
ADISEXP	Abnormal discretionary expenses in the offering year, estimated following Roychowdhury (2006). The value is multiplied by negative one.
REM1	Aggregate level of real earnings management in the offering year, calculated as the sum of abnormal production costs and abnormal discretionary expenses.
REM2	Aggregate level of real earnings management in the offering year, calculated as the sum of abnormal cash flow from operations and abnormal discretionary expenses.
TCACC	Discretionary current accruals in the offering year, calculated as the residuals from equation (8) (following Teoh et al., 1998).
Financial Misstatements	Dummy variable equal to one if the firm's financial statement for the offering year is restated, and zero otherwise.

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Table 1: Yearly and Industry Distribution Statistics

This table presents distributional statistics for a sample of 1,215 U.S. IPOs from 1 January 2000 to 31 December 2017. The IPOs are described by issue-year in Panel A, whereas in Panel B the IPOs are distributed by industry. IPO deals are retrieved from the Thomson ONE Banker database.

Panel A: Yearly Distribution			
All IPOs			DH
Year	N	%	
2000	173	14.24	1.39
2001	40	3.29	0.29
2002	33	2.72	-1.77
2003	27	2.22	0.61
2004	95	7.82	-0.60
2005	70	5.76	-1.06
2006	76	6.26	-1.22
2007	80	6.58	-1.71
2008	13	1.07	-1.85
2009	25	2.06	-6.02
2010	51	4.20	-2.77
2011	60	4.94	-4.67
2012	65	5.35	-4.31
2013	106	8.72	-5.27
2014	116	9.55	-3.89
2015	78	6.42	-4.15
2016	50	4.12	-3.60
2017	57	4.69	-2.61
Total	1,215		

Panel B: Industry Distribution				
Industry-Two SIC Code	All IPOs		DH	
	N	%		
Oil and Gas	(13)	39	3.21	-2.92
Food Products	(20)	11	0.91	-5.45
Chemical Products	(28)	251	20.66	-2.56
Manufacturing	(30-34)	29	2.39	-5.34
Computer Equipment & Services	(35, 73)	335	27.57	-1.63
Electronic Equipment	(36)	110	9.05	-1.14
Scientific Instruments	(38)	98	8.07	-3.25
Transportation & Public Utilities	(41, 42, 44-49)	74	6.09	-1.19
Wholesale & Retail Trade	(50-59)	102	8.40	-2.54
Entertainment Services	(70, 78, 79)	16	1.32	-4.05
Other		150	12.35	-3.39
Total		1,215		

Table 2: Summary Statistics

The Table presents descriptive statistics for the sample of U.S. IPOs over the period from 2000 to 2017. CEO and CFO characteristics are presented in Panel A. Firm and offering characteristics are reported in Panel B, while Panel C presents the descriptive statistics on earnings management proxies. Tests of differences in means between the two sub-samples of IPO firms with a high CFO DH and those with low CFO DH are based on t-tests. The number of observations for each variable is 1,215. All variables are defined in Appendix A.

Panel A: CEO and CFO Characteristics						
	Full Sample (N=1,215)		High CFO DH	Low CFO DH	Difference	
	Mean	SD	Mean	Mean	p-value	
CFO Age	47.80	7.10	42.18	53.07	0.0000	
CFO Tenure	2.46	2.42	1.81	3.06	0.0000	
CFO Gender	0.91	0.28	0.91	0.92	0.5830	
No. Roles	3.99	1.35	3.95	4.03	0.2970	
No. Firms	4.95	2.12	4.39	5.47	0.0000	
CFO Ivy League	0.14	0.35	0.15	0.13	0.1494	
CFO MBA	0.42	0.49	0.40	0.43	0.3615	
CFO Qualified Accountant	0.36	0.48	0.38	0.34	0.1492	
CEO Age	50.60	7.96	49.51	51.62	0.0000	
CEO Duality	0.65	0.47	0.57	0.73	0.0000	
Total CEO Pay	\$1,518,215	\$2,739,011	\$1,324,670	\$1,699,721	0.0170	
Panel B: Firm and Offering Characteristics						
EPS	0.45	0.50	0.45	0.46	0.8984	
Size	\$782.93	\$5,212.43	\$753.03	\$810.96	0.8466	
Proceeds	\$188.89	\$693.10	\$191.82	\$186.15	0.8868	
Firm Age	13.44	16.08	12.24	14.56	0.0139	
Leverage	0.44	1.29	0.48	0.40	0.3109	
Governance Quality	0.10	1.41	-0.04	0.24	0.0007	
Underpricing	21.19	41.94	23.62	18.91	0.0504	
Internet	0.10	0.30	0.12	0.09	0.0582	
Technology	0.39	0.49	0.40	0.38	0.5493	
Underwriter	0.39	0.49	0.36	0.41	0.0895	
High Underwriter	0.71	0.45	0.65	0.77	0.0000	
Big 4 Auditor	0.84	0.36	0.84	0.84	0.8852	
VC	0.57	0.49	0.57	0.57	0.9146	
Nasdaq	0.84	0.36	0.71	0.68	0.2611	
Panel C: Earnings Management Proxies						
	Full Sample (N=1,215)		High CFO DH	Low CFO DH	Difference	
	Mean	SD	Median	Mean	Mean	p-value
DACC	-0.06	0.78	0.03	-0.12	-0.01	0.0098
AACC	-0.14	0.91	-0.04	-0.11	-0.07	0.0034
AOCF	0.17	0.89	-0.02	0.19	0.15	0.4902
APROD	0.75	1.89	0.29	0.74	0.75	0.9657
ADISEXP	-0.44	1.68	-0.05	-0.58	-0.31	0.0048
REM1	0.31	2.53	0.21	0.16	0.44	0.0568
REM2	-0.27	1.14	-0.05	-0.39	-0.15	0.0003
Financial Misstatements	0.04	0.20	0.00	0.03	0.05	0.0956

Table 3: The Effect of CFO Career Prospects on Earnings Quality

This table displays the effects of CFO career prospects on Earnings Quality using ordinary least square (OLS) regressions. The sample consists of initial public offerings from 2000 to 2017 in the US stock market. The dependent variables are DACC, AACC, AOCF, APROD, ADISEXP, REM1, and REM2. T-statistics are included in the parentheses and are adjusted for heteroscedasticity robust standard errors clustered by year and industry. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix A.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	DACC	AACC	AOCF	APROD	ADISEXP	REM1	REM2
CFO DH	-0.003** (-2.10)	-0.011*** (-3.13)	0.004 (0.79)	-0.006 (-0.65)	-0.015*** (-2.85)	-0.020*** (-2.90)	-0.011*** (-4.85)
CEO DH	-0.001 (-0.68)	-0.001 (-1.62)	0.001 (0.44)	0.001 (0.24)	-0.008* (-1.95)	-0.007 (-1.31)	-0.007*** (-4.68)
CFO Gender	0.07** (2.54)	0.08 (0.64)	0.12 (1.34)	-0.14 (-0.89)	-0.08 (-0.38)	-0.22 (-1.21)	0.04 (0.298)
CFO Ivy League	-0.04 (-0.95)	-0.07 (-1.45)	0.01 (0.25)	0.03 (1.45)	0.04 (0.34)	0.08 (0.41)	0.05 (0.53)
CFO MBA	-0.04*** (-4.50)	0.06 (1.20)	-0.06 (-1.25)	-0.05 (-0.33)	-0.21** (-2.26)	0.16 (0.68)	-0.15** (-2.48)
CFO Qualified Accountant	0.02 (0.84)	0.08 (0.76)	-0.04*** (-2.71)	-0.10 (-0.92)	-0.13*** (-3.35)	0.04 (0.27)	-0.10** (-2.45)
No. Roles	-0.01* (-1.98)	-0.04 (-0.86)	0.03* (1.94)	0.03 (0.81)	-0.09** (-2.52)	-0.06 (-1.00)	-0.06** (-2.19)
No. Firms	0.01*** (3.22)	0.1 (0.93)	-0.01 (-0.26)	-0.03* (-1.75)	0.02 (2.77)	-0.01 (-0.45)	0.01 (0.67)
Total CEO Pay	-0.01 (-0.76)	-0.01 (-0.08)	0.01 (0.12)	-0.02 (-0.83)	-0.03 (-0.46)	-0.05 (-1.16)	-0.03 (-0.85)
Governance Quality	-0.01*** (-2.83)	-0.02*** (-2.79)	0.01 (0.37)	0.01 (0.10)	-0.03 (-0.77)	-0.02 (-0.49)	-0.02 (-1.13)
Leverage	0.04* (1.66)	0.08** (2.11)	-0.04 (-0.95)	-0.17* (-1.82)	0.09 (1.55)	-0.08 (-0.85)	0.05 (1.30)
EPS	0.08*** (4.93)	0.01 (0.06)	-0.13* (-1.74)	-0.03 (-0.24)	-0.01 (-0.04)	0.04 (0.24)	-0.14* (-1.72)
Firm Age	0.04** (2.12)	-0.02 (-0.60)	-0.05 (-1.26)	-0.03 (-0.43)	0.05 (1.01)	0.02 (0.21)	0.01 (0.28)
Size	0.01 (0.02)	0.03 (1.09)	-0.13** (-2.52)	-0.16** (-2.28)	0.26*** (4.49)	0.10 (1.03)	0.12*** (3.00)
VC	-0.04 (-1.39)	-0.01 (-0.07)	-0.06 (-0.68)	0.01 (0.03)	-0.11 (-1.29)	-0.11 (-0.93)	-0.17*** (-2.91)
High Underwriter	0.02 (0.39)	0.08 (0.98)	-0.11** (-2.12)	-0.28* (-1.75)	0.04 (0.49)	-0.25 (-1.22)	-0.08 (-1.05)
Big 4 Auditor	0.06 (1.58)	0.03 (0.22)	0.05 (0.62)	0.36*** (2.79)	-0.01 (-0.07)	0.34 (1.61)	0.03 (0.19)
Technology	-0.01 (-1.08)	-0.06*** (2.25)	-0.12*** (-6.29)	-0.36** (-2.60)	-0.22*** (-3.18)	-0.57*** (-3.87)	-0.34*** (-6.68)
Internet	0.01 (0.31)	-0.03 (-0.55)	-0.09** (-2.50)	-0.24 (-1.58)	-0.07 (-0.95)	-0.31** (-2.05)	-0.16*** (-2.81)
Nasdaq	-0.01 (-0.29)	-0.06 (-1.27)	0.02 (0.49)	0.05 (0.33)	0.05 (0.75)	0.09 (0.55)	0.07 (1.61)
Industry FE	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y
Adjusted R ²	0.0810	0.0631	0.1901	0.0928	0.1736	0.1403	0.1269
Number of Obs.	1,215	1,215	1,215	1,215	1,215	1,215	1,215

Table 4: Two-Stage Least Squares

This table reports results from TSLS estimation in which DACC, AACC, AOCF, APROD, ADISEXP, REM1, and REM2 are our dependent variables and CFO DH is our instrumented independent variable. The dependent variable in the selection model is the CFO DH. Panel A displays the first-stage results, while Panel B presents the second-stage results, where Instrumented CFO DH is the result from Column (3) of Panel A. T-statistics are included in the parentheses and are adjusted for heteroscedasticity robust standard errors clustered by year and industry. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix A.

Panel A: First-Stage Results			
	(1)	(2)	(3)
Outside Employment Opportunities	-0.11** (-2.22)		-0.03** (-2.63)
ISIZE		1.38** (2.49)	1.31** (2.45)
ICFOCOMP		3.96*** (4.53)	2.77*** (2.79)
Remaining Control Variables			
Acquisitions _{j,t-3}	-0.01*** (-3.16)		0.01 (0.44)
CEO DH	0.12** (2.52)	0.15*** (5.52)	0.16*** (4.99)
CFO Gender	0.83 (1.51)	-0.06 (-0.12)	-0.14 (-0.19)
CFO Ivy League	-0.71 (-1.01)	-0.80 (-1.07)	-0.69 (-1.02)
CFO MBA	-2.25*** (-3.80)	-2.38*** (-4.69)	-2.23*** (-3.75)
CFO Qualified Accountant	0.44 (1.21)	0.49 (1.26)	0.38 (1.15)
No. Roles	-0.77*** (-5.30)	0.75*** (4.45)	-0.75*** (-5.21)
No. Firms	-1.10*** (-3.35)	-0.97*** (-5.91)	-0.86*** (-5.40)
Total CEO Pay	0.10 (0.68)	0.08 (0.66)	0.14 (0.62)
Governance Quality	-0.31** (-2.05)	-0.34** (-2.12)	-0.26** (-2.01)
Leverage	1.14 (1.39)	0.55 (1.01)	0.48 (0.90)
EPS	-0.10 (-0.22)	-0.30 (-0.84)	-0.25 (-0.58)
Firm Age	-0.65** (-2.52)	-0.92*** (-5.83)	-0.80** (-2.66)
Size	-0.44*** (-4.83)	-0.33*** (-4.34)	-0.34** (-2.55)
VC	-1.15** (-2.58)	-0.46* (-1.77)	-0.83 (-1.13)
Technology	0.24 (1.36)	0.43 (1.28)	0.28 (0.29)
Internet	1.37 (1.54)	1.79*** (3.06)	1.76** (2.31)
High Underwriter	0.03 (0.04)	0.44 (0.86)	0.23 (0.28)
Nasdaq	-0.10 (-0.19)	-0.26 (-0.92)	-0.32 (-0.76)
Big 4 Auditor	0.59 (0.93)	0.49 (0.97)	0.98 (1.42)
Industry FE	Y	Y	Y
Year FE	Y	Y	Y
State FE	Y	N	Y
Adjusted R ²	0.2043	0.2074	0.2023
Number of Obs.	1,215	1,215	1,215

Panel B: Second-Stage Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	DACC	AACC	AOCF	APROD	ADISEXP	REM1	REM2
Instrumented CFO DH	-0.013*** (-2.75)	-0.024*** (-3.35)	0.011 (0.55)	0.310** (2.24)	-0.027*** (-3.05)	-0.014*** (-2.85)	-0.017** (-2.35)
Control Variables	Y	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y
State FE	Y	Y	Y	Y	Y	Y	Y
Adjusted R ²	0.0750	0.0590	0.1888	0.0935	0.1687	0.2024	0.1233
Number of Obs.	1,215	1,215	1,215	1,215	1,215	1,215	1,215
Tests of endogeneity, relevance, and validity of instruments							
Kleibergen-Paap rank							
Wald F-Statistics (for							
Instrument							
Relevance)							
Outside Employment	10.41***						
Opportunities							
ISIZE	15.35***						
ICFOCOMP	25.68***						
Hansen's J Test	0.05	0.09	0.38	1.84	0.61	0.28	2.69
Hausman Test for	0.24	0.43	1.44	8.45**	4.54*	10.30***	3.50*
exogeneity							

Table 5: Propensity Score Matching and Entropy Balance

This table presents the analysis on the relation between High CFO DH and Earning Quality using the One-to-One Propensity Score Matching (PSM) procedure and Entropy Balance Method. Panel A reports univariate analysis for 407 firms with high CFO DH and 407 firms with low CFO DH. The variables used to estimate differences in means are tested based on t-test. Panel B displays the estimation of the OLS results on the matched samples. Panel C presents the estimation of propensity score matching on the matched sample. Panel D reports the estimation of the OLS results after entropy balancing. We use the nearest-neighbor estimator (nnmatch) from Abadie, Drukker, Leber, Herr and Imbens (2004). Control variables are the same as in Table 3. Regressions control for industry and year fixed effects whose coefficients are suppressed. All variables are defined in Appendix A.

Panel A: Mean Differences Between Treatment and Control Group of PSM Sample (N=646)							
	Treatment		Control		Difference (p-value)		
CFO Gender	0.91		0.91		0.7133		
CFO Ivy League	0.15		0.14		0.4544		
CFO MBA	0.42		0.41		0.3122		
CFO Qualified Accountant	0.36		0.35		0.2831		
No Roles	3.99		4.02		0.7438		
No Firms	4.82		4.79		0.8490		
CEO Age	50.46		50.78		0.5617		
CEO Duality	0.63		0.71		0.0192		
Total CEO Pay	\$1,479,790		\$1,449,999		0.8714		
Governance Quality	0.10		0.14		0.7515		
EPS	0.47		0.48		0.8885		
Size	506.38		522.45		0.9006		
Proceeds	189.25		188.45		0.6564		
Firm Age	13.18		14.32		0.3262		
Leverage	0.38		0.39		0.8383		
Underpricing	20.53		22.95		0.4090		
Internet	0.09		0.10		0.6304		
Technology	0.38		0.39		0.8291		
Underwriter	0.39		0.37		0.5163		
High Underwriter	0.76		0.77		0.8036		
Big 4 Auditor	0.83		0.84		0.6339		
VC	0.55		0.57		0.4804		
Nasdaq	0.70		0.71		0.7008		
Panel B: The Impact of CFO Decision Horizon on Earnings Quality on the Matched Sample							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	DACC	AACC	AOCF	APROD	ADISEXP	REM1	REM2
CFO DH	-0.002** (-2.22)	-0.008*** (-6.10)	0.002 (0.51)	-0.003 (-0.26)	-0.010*** (-3.24)	-0.015** (-2.22)	-0.010*** (-3.14)
Control Variables	Y	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y
Adjusted R ²	0.0865	0.0662	0.2110	0.1035	0.1810	0.2345	0.1219
Number of Obs.	799	814	814	814	814	782	830
Panel C: Propensity Score Matching on the Matched Sample							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	DACC	AACC	AOCF	APROD	ADISEXP	REM1	REM2
ATET (High CFO DH vs. Low CFO DH)	-0.07* (-1.95)	-0.15** (-2.11)	-0.03 (-0.65)	-0.17 (-1.24)	-0.246*** (-2.72)	-0.28** (-2.28)	-0.21** (-2.51)
Number of Observations	799	814	814	814	814	782	830
Panel D: The Impact of CFO Decision Horizon on Earnings Quality after Entropy Balance							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	DACC	AACC	AOCF	APROD	ADISEXP	REM1	REM2
CFO DH	-0.008** (-2.27)	-0.016** (-2.41)	0.005 (1.22)	-0.013 (-1.33)	-0.019*** (-3.03)	-0.019*** (-2.74)	-0.014*** (-3.25)
Control Variables	Y	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y
Adjusted R ²	0.0605	0.0781	0.1875	0.0878	0.1743	0.1246	0.1244
Number of Obs.	1,215	1,215	1,215	1,215	1,215	1,215	1,215

Table 6: Alternative Measurements

This table displays the effects of CFO career prospects on Earnings Quality using ordinary least square (OLS) regressions. The sample consists of initial public offerings from 2000 to 2017 in the US stock market. Panel A presents the impact of CFO DH on EQ by using alternative measures of earnings quality, while Panel B presents the impact of CFO DH on EM by using alternative measures of CFO career prospects. Control variables are the same as in Table 3. The dependent variables in Panel B are DACC, AACC, AOCF, APROD, ADISEXP, REM1, and REM2. T-statistics are included in the parentheses and are adjusted for heteroscedasticity robust standard errors clustered by year and industry. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix A.

Panel A: The Effect of CFO Career Prospects on Earnings Quality							
	(1)	(2)					
	TCACC	Financial Misstatements					
CFO DH	-0.002** (-1.94)	-0.002** (-2.18)					
Control Variables	Y	Y					
Industry FE	Y	Y					
Year FE	Y	Y					
Adjusted R ²	0.1237	0.0665					
Number of Obs.	1,215	1,215					
Panel B: The Effect of CFO Career Prospects on Earnings Quality							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	DACC	AACC	AOCF	APROD	ADISEXP	REM1	REM2
CFO Career Horizon	-0.23*** (-2.92)	-0.08*** (-2.95)	0.06 (0.44)	-0.17 (-1.17)	-0.24* (-1.98)	-0.36* (-1.75)	-0.18*** (-2.07)
Control Variables	Y	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y
Adjusted R ²	0.0616	0.0761	0.1889	0.0934	0.1695	0.1402	0.1224
Number of Obs.	1,215	1,215	1,215	1,215	1,215	1,215	1,215

Table 7: Cross-Sectional Analyses

This table reports results from OLS regressions in which abnormal accruals is our dependent variable and CFO DH is our main variable of interest. Panel A presents the results from the impact of internal monitoring and industry concentration on the association between CFO DH and abnormal accruals. Panel B presents the results from the impact of CFO incentives on the association between CFO DH and abnormal accruals. Panel C reports the results from the impact of IPO financial intermediaries on the association between CFO DH and abnormal accruals. To compare the difference of the coefficients of CFO DH across different subsamples, we follow Clogg et al. (1995) and Paternoster et al., (1998). Control variables are the same as in Table 3. T-statistics are included in the parentheses and are adjusted for heteroscedasticity robust standard errors clustered by year and industry. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix A.

Panel A: The Impact of Monitoring and Industry Concentration on the Association Between CFO DH and Abnormal Accruals								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	High Governance Quality	Low Governance Quality	Powerful CEOs	Non-Powerful CEOs	High Institutional Ownership	Low Institutional Ownership	High HHI	Low HHI
CFO DH	-0.014** (-2.21)	-0.007* (-1.82)	-0.007 (-1.35)	-0.014*** (-3.07)	-0.017*** (-10.95)	-0.002 (-0.51)	-0.005 (-1.24)	-0.016*** (-9.56)
Control Variables	Y	Y	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Adjusted R ²	0.1001	0.0698	0.0758	0.0935	0.0829	0.0993	0.0909	0.0746
Number of Observations	607	608	626	589	605	539	613	602
z-statistic	-0.93		1.02		-3.63***		2.59***	
Panel B: The Impact of CFO Incentives on the Association Between CFO DH and Abnormal Accruals								
	(1)	(2)	(3)	(4)				
	High CFO Incentive Compensation	Low CFO Incentive Compensation	High CFO Ownership	Low CFO Ownership				
CFO DH	-0.001 (-0.64)	-0.022*** (-13.44)	-0.008 (-1.37)	-0.015*** (-3.02)				
Control Variables	Y	Y	Y	Y				
Industry FE	Y	Y	Y	Y				
Year FE	Y	Y	Y	Y				
Adjusted R ²	0.1235	0.0908	0.0765	0.0937				
Number of Observations	606	538	626	589				
z-statistic	8.89***		1.01					
Panel C: The Impact of Financial Intermediaries on the Association Between CFO DH and Abnormal Accruals								
	(1)	(2)	(3)	(4)				
	VC	Non-VC	High Underwriter	Low Underwriter				
CFO DH	-0.011*** (-2.93)	-0.008 (-1.38)	-0.005** (-2.60)	-0.020*** (-3.41)				
Control Variables	Y	Y	Y	Y				
Industry FE	Y	Y	Y	Y				
Year FE	Y	Y	Y	Y				
Adjusted R ²	0.0668	0.1722	0.0758	0.2869				
Number of Observations	692	523	863	352				
z-statistic	8.89***		1.01					

Table 8: CFO Departures on the Post-IPO Period

This Table presents the occurrence of CFO departure within five years after the IPO date and how it affects the CFO career prospects using the Cox proportional hazards model of probability of CFO turnover. The sample period is from 2000 to 2013. All CFOs are tracked until 31 December 2017. Panel A reports the CFO turnover rates for the post-IPO period. Panel B displays the CFO DH effect on post-IPO CFO turnover. Regressions control for industry and year fixed effects whose coefficients are suppressed. Control variables are the same as in Table 3. Z-statistics are included in the parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix A.

Panel A: CFO Turnover Rate		
Post-IPO Periods	No.	%
1	176	14.49
2	209	17.71
3	223	18.39
4	152	12.54
5	92	7.54
Total CFO Turnover	859	70.68%
Panel B: The Effect of CFO DH on CFO Turnover		
CFO DH	0.03*** (6.35)	
Control variables	Y	
Industry FE	Y	
Year FE	Y	
Number of Obs.	914	
Chi-Square	264.08	

Table 9: CFO Future after IPO

The Table presents descriptive statistics for future of the CFO for the sample of U.S. IPOs over the period from 2000 to 2013. All CFOs are tracked until 31 December 2017. The new positions of CFO are presented in Panel A, whereas Panel B reports results from probit regressions for the probability of CFOs with longer career prospects to be promoted to higher positions. Tests of differences in means between the two sub-samples of IPO firms with a high CFO DH and those with low CFO DH are based on t-tests. The number of observations for each variable is 914. Control variables in Panel B are the same as in Table 3. All variables are defined in Appendix A.

Panel A: Positions of CFO after the Offering								
	From the IPO date to December 2010				From the IPO date to the CFO departure			
	Full Sample (N=914)	High CFO DH	Low CFO DH	Diff.	Full Sample (N=914)	High CFO DH	Low CFO DH	Diff.
	Mean	Mean	Mean	p-value	Mean	Mean	Mean	p-value
Promotion	0.31	0.37	0.25	0.0001	0.16	0.18	0.13	0.0736
CFO other Public	0.23	0.21	0.15	0.0265	0.09	0.09	0.08	0.7837
CFO Same Firm	0.06	0.04	0.07	0.0867	0.07	0.05	0.08	0.1466
CFO Private Firm	0.48	0.42	0.34	0.0146	0.29	0.31	0.27	0.2363
CEO other Public	0.05	0.03	0.02	0.4595	0.01	0.02	0.01	0.4885
CEO Same Firm	0.08	0.02	0.01	0.0001	0.03	0.04	0.02	0.0709
CEO Private Firm	0.10	0.01	0.01	0.1066	0.03	0.04	0.02	0.2279
CEO in a Public or Private Firm	0.14	0.19	0.10	0.0003	0.06	0.08	0.04	0.0313
Position in a Public Firm	0.21	0.24	0.17	0.0194	0.10	0.18	0.13	0.0736
Panel B: Probabilities of Promotion								
	Promotion	CEO in a Public or Private Firm	Position in a Public Firm	CEO other Public	CFO other Public	CEO Same Firm	CFO Same Firm	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
CFO DH	0.011** (2.52)	0.011** (2.24)	0.010* (1.85)	0.009 (0.81)	0.009* (1.69)	0.011 (1.54)	-0.011 (-1.53)	
Control Variables	Y	Y	Y	Y	Y	Y	Y	
Industry & Year FE	Y	Y	Y	Y	Y	Y	Y	
Pseudo R ²	0.0744	0.0673	0.0879	0.1536	0.0886	0.1017	0.2102	
Number of Observations	914	914	914	914	914	914	914	