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Chief Financial Officer Turnovers and Firm Performance

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Management

by

Chi Cheng

2014

ABSTRACT OF THE DISSERTATION

Chief Financial Officer Turnovers and Firm Performance

by

Chi Cheng

Doctor of Philosophy in Management

University of California, Los Angeles, 2014

Professor Brett Trueman, Chair

This study examines the contributing factors to different turnovers of chief financial officers (CFOs) and the implication of these CFO turnovers on firm operating performance, accounting information quality and management forecast accuracy. The performance-turnover relation is examined under a more refined turnover classification, which considers organizational commitment and job satisfaction, the two most common determinants of employee turnovers shown in the psychology literature.

By studying 1,182 CFO turnovers during 2002 to 2012, I find the CFO performance-turnover relation varies significantly across different turnover categories. As anticipated, no turnover-performance relation is observed among CFO turnovers due to non-work responsibilities. However, better performance does not translate into higher likelihood of promotions. Furthermore, while under-performing CFOs are more likely to be replaced involuntarily, these disciplinary turnovers trigger limited or no subsequent improvements in firm performance. Finally, voluntary CFO turnovers are followed by significant deteriorations in accounting reporting quality, with no concurrent changes in real firm activities. These turnovers reflect accounting policy changes, which should be analyzed and accounted for when conducting future firm valuations.

The dissertation of Chi Cheng is approved.

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1. Introduction

Top executives play important roles in developing business strategies and overseeing firm operations, and therefore any turnover among these executives has significant influence on firm performance and corporate value. Many studies analyze the factors contributing to Chief Executive Officer (CEO) turnovers (Engel, Hayes, and Wang, 2003; Farrell and Whidbee, 2003; Brickley, 2003; Jenter and Lewellen, 2010), and others investigate the changes in firm performance around the turnovers (Murphy and Zimmerman, 2003). However, while many researchers study CEO turnovers and their implications for firm performance, a comprehensive study of different performance factors contributing to chief financial officers' turnovers and the consequences of CFO turnovers is missing from the current literature.

During the past decade, CFOs have received more attention from investors due to CFOs' responsibilities in overseeing the production of accounting information and the financial statements. Since the enactment of the Sarbanes-Oxley Act (SOX) in 2002, the SEC has required CFOs, in addition to CEOs, to certify and to take on personal responsibility for firms' financial reports. Furthermore, CFOs now also contribute to top-level strategic decisions (Dill, 2013). Given the growing importance in the role of CFOs, it is important to understand the factors leading to CFO turnovers and their implications for firm performance.

In this paper, I investigate (a) the performance factors affecting CFO turnovers, and (b) the consequences for firm performance after CFO turnovers. Following the current literature (Mian, 2001; Geiger and North, 2006; Jiang et al., 2010; Lee et al., 2012), I not only study

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the quality of financial reporting, which is the main responsibility of CFOs, but also examine firm operating performance and management forecast accuracy, which are affected by CFOs' duties such as risk management and financial planning. The proxies for firm performance are as follows: (1) operating performance: return on assets (ROA) and return on equities (ROE); (2) management forecast: mean forecast errors and number of forecasts; and (3) accounting information quality: earnings quality (EQ) and F-score.

To analyze the association between managerial turnovers and firm performance, prior studies have classified turnovers as voluntary and involuntary turnovers (Finkelstein and Hambrick, 1996; Mian, 2001). Based on the determinants of employee turnovers in psychology studies (Porter et al, 1974; Shaw and Delery, 1998; Griffeth, Hom and Gaertner, 2000), I extend the bilateral framework and classify CFO turnovers into five groups with information from news synopses in Capital IQ. These five groups are: (1) Non-work responsibilities related (NWR) turnovers: retirements, health issues, and family reasons. (2) Promotion related (PR): leaving for higher positions inside or outside the current firm. (3) Voluntary: decreasing organizational commitment and/or job satisfaction. (4) Firm restructuring related (FR): reorganization or downsizing. (5) Negative-event induced (NE): accounting restatements, insider trading, or fraud. Mian (2001) views CFO turnovers due to non-work responsibilities, promotions and voluntary reasons as simply "voluntary". Turnovers due to either firm restructuring or negative events are both categorized as involuntary turnovers under Mian's framework. I separate the two groups to observe whether turnovers with regulatory sanctions have larger impact on firms[1]. In the sample

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[1] In my study, I refer to both firm restructuring (FR) and negative-event related (NE) turnovers as involuntary turnovers.

used for this study, CFO turnovers due to non-work responsibilities are the most common and account for almost 40% of the entire sample. Promotions and voluntary turnovers account for another 20% and 30% respectively. Only 2% and 7% of the turnovers are due to negative events and firm restructuring. By the more refined differentiation among CFO turnovers, I can investigate how CFOs' performance affects their turnover likelihood under different turnover scenarios. Furthermore, I study the post-turnover implications for firm performance for each turnover category, which has never been examined in prior literature.

My hypotheses are the following: (1) No specific performance factors contribute to NWR turnovers. (2) Greater improvement in performance (compared to industry benchmark) will increase CFOs' chances of promotions (PR). (3) Since NWR and PR turnovers are not induced by deteriorating firm performance, firms with these turnovers have little reason to change their current practices or operating policies and thus no significant post-turnover changes in firm performance are expected. (4) The deterioration in firm performance increases the likelihood of FR and NE turnovers. In this case, firms or new CFOs are likely to take procedures to improve performance, and thus post-turnover improvements in firm performance are expected. Finally, (5) changes in firm performance, where changes in firms' goals or values would reflect, increase the likelihood of voluntary turnovers[2]. There may not be any post-turnover impact if most of the impact was reflected in prior-turnover

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[2] Organizational commitment is defined in terms of the strength of an individual's identification with and involvement in a particular organization. Such commitment can generally be characterized by at least three factors: (a) a strong belief in and acceptance of the organization's goals and values; (b) a willingness to exert considerable effort on behalf of the organization; (c) a definite desire to maintain organizational membership (Porter et al., 1974).

performance. However, if new CFOs could better identify with firms' new goals or values, they could potentially deliver further changes in post-turnover firm performance.

My overall findings show that the performance-turnover relation for CFOs is different among different CFO turnovers. As expected, no association is found between any aspect of firm performance and NWR CFO turnovers. In addition, under-performing CFOs do face higher likelihood of involuntary turnovers. However, while involuntary CFO turnovers appear to be disciplinary, firms with these turnovers do not deliver significantly greater improvements in their post-turnover performance compared with their performance-matching peers[3].

On the other hand, in cases where there are improvements in firm performance, I find that greater improvements do not necessarily translate to greater likelihood of CFO promotion, which may be due to the limited vacancies in higher-level positions. Interestingly, declines in operating performance and in accounting misstatement risk increase the likelihood of voluntary turnovers. Furthermore, firms with these voluntary turnovers experience post-turnover deteriorations in accounting quality. While the declining ROA might suggests some of these turnovers are not truly voluntary, the combined evidence regarding accounting quality suggests the firms are taking a more aggressive accounting approach, causing the declines in accounting information quality and the changes in CFOs' organizational commitments or job satisfaction. Nevertheless, under the US Generally Accepted Accounting Principles (GAAP), firms do have discretion over some accounting choices to report their financials so that the disclosed information better represents firms'

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[3] For a firm undergoing a CFO turnover, its performance-matched peer is defined to be in the same industry, with similar firm size, having close annual return on assets but without a CFO turnover.

true financial status. On that note, when encountering voluntary CFO turnovers, investors (and analysts) should consider the potential accounting changes and modify their valuation models accordingly when performing firm valuations in the future. Feng and Ge (2010) provide evidence in an extreme case: compared with their peers, firms with accounting restatements experience higher CFO turnover rates during the few years prior to the restatements. They argue that CFOs are more likely to resign in these cases when they are not willing to perform certain accounting manipulations per the directions of CEOs.

This study provides a more comprehensive view on the implications of CFO turnovers for firm performance, and the contribution is three-fold. First, the sample in this study covers all types of CFO turnovers and adopts a more refined classification framework. This helps better identify different performance-turnover relations under different turnover scenarios. Many existing CFO turnover studies target only firms involved in accounting restatements (Collins et al., 2009; Burks, 2010; Fe and Ge, 2010). Due to the extreme and rare nature of these events, the findings in these papers may not be generalized to all firms. Second, this study contributes to the research on managerial impact on firm performance. Prior executive turnover studies (e.g. Mian, 2001) focus more on the characteristics of CFOs and less on the post-turnover implications and consequences for firms. Finally, with existing studies mostly focusing on firm operating performance, this study contributes to the literature by examining firm accounting quality and management forecast and providing evidence regarding the implications of executive turnovers on firm accounting policies.

The paper is organized as follows. Section I describes the different CFO turnovers and the classification framework used in this study. Section II discusses the managerial impact on firm performance and hypotheses concerning the performance-turnover relations. Data and

variable definitions are described in Section III. The empirical methods and findings are presented in Section IV. Section V concludes.

2. CFO turnovers

CFO turnovers in this study are classified into five groups based on the disclosed information in firm announcements obtained from Capital IQ, rather than implications from other firm and/or executive characteristics: (1) non-work responsibilities related (NWR) turnovers, (2) promotion related (PR), (3) voluntary, (4) firm restructuring (FR), (5) negative-event induced (NE).[4]
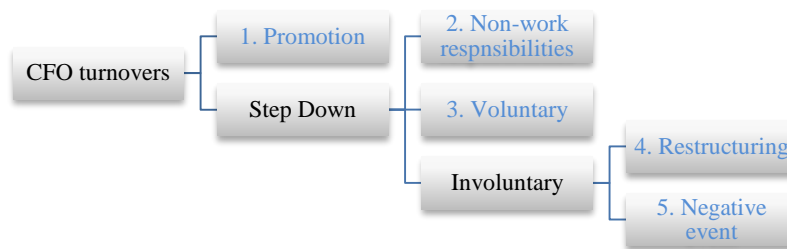
Figure 1: Turnover Categories

I first identify promotions by examining whether the incumbent CFO left for a higher position, either inside the current company or at a different firm. Then I turn to various departing reasons. A turnover is regarded as non-work responsibility related if the incumbent CFO is retiring, deceased, having health issues, or relocating with families. When identifying CFO retirements, I first use the direct information from firm statements, and if no explicit information is available, I then use the age over 65 as a benchmark. Choosing age 65 is a rather conservative choice, since there is a decreasing trend in

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[4] There is one exception for non-work responsibility related turnovers: turnovers with CFO age of 65 or older. When executives leave their positions around such age, the turnovers are all retirements in essence. Even if they sometimes state different reasons or assume other titles, these executives will only remain a honorary title and retire from those positions shortly after the transitions.

retirement age during the past decade. In several cases, CFOs even choose to retire at as early as age 50.

Involuntary CFO turnovers are the cases where CFOs are removed or reassigned by firms, and the turnovers are separated into two groups due to the different nature in the associated events. One type of CFO replacements is related to events such as SEC sanctions, accounting restatements, bankruptcies, and insider trading; they are called negative events (NE) turnovers. Meanwhile, some CFOs are replaced due to important firm changes or reforms that are not considered negative in nature and are not involved with regulatory sanctions; examples include firm restructuring for efficiency, realignments after mergers and acquisitions, or organizational downsizing for cost purposes. These firm-initiated turnovers are classified under the firm restructuring (FR) category.

On the other hand, some CFOs choose to leave their positions at discretion and give reasons such as pursuing other interests or opportunities upon their departures. These turnovers are considered "voluntary" in this study since they are likely related to the two most common determinants for employee turnovers identified in the psychology literature: organizational commitment and job satisfaction (Griffeth, Hom and Gaertner, 2000). The commitment emphasizes how the employee identifies with firms' goals or values, while satisfaction accentuates the environment where the employee performs his duties (Mowday, 1979). Changes in firms' goals or values (work environment or industry) could induce declines in CFOs' organizational commitments (job satisfaction) and lead to voluntary departures.

Finally, turnover announcements containing only names of departing and incoming CFOs are not included any of the categories, as the information is insufficient to meet the classification criteria. Table 1 presents the distribution of turnovers.

<Insert Table 1>

This five-group classification is an extension from the current "voluntary vs. involuntary" framework used in prior managerial turnover studies (Finkelstein and Hambrick, 1996; Mian, 2001). CFO turnovers due to non-work responsibilities, promotions and voluntary reasons are all considered *voluntary* under the existing bilateral framework. However, after learning about the different reasons among employee turnovers such as organizational commitment and job satisfaction from the psychological studies, I separate these turnovers into three categories according to their different nature, from which I expect their performance-turnover relations will be different as well. In particular, I am interested in exploring the changes of firm performance when CFOs' organizational commitment or job satisfaction declines. As for FR and NE turnovers, while they both are involuntary, I separate them to observe whether firms carry out greater improvements in their future performance when regulators or government interventions are involved. Finally, turnovers in this study are not classified based on performance measured by return on assets, nor by the stock market reactions during announcement window. Firms' stated reasons determine the nature of the events; an event will not be categorized as negative or involuntary unless the reasons or related events suggest that is the case.[5]

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[5] I did not use the stock market reaction to classify the events, either. In fact, investors' reactions towards these different turnovers are also a topic of interest in this study.

3. Relation between CFO Turnovers and Firm Performance

While the turnover of a firm's CFO is one important outcome of internal governance mechanism, it has not received as much attention in existing studies as the turnover of CEO and its implication on firm performance is much less explored. Focusing on CFO turnovers during 1984 to 1997, Mian (2001) uses annual stock returns and return on assets (ROA) as performance benchmarks to evaluate CFOs and concludes CFO turnovers are mostly disciplinary. However, due to the different nature between the duties of CFOs and CEOs, using performance measures such as ROA and stock returns might not fully reflect nor best capture the performance of CFOs. Especially after the enactment of SOX in 2002, the quality of accounting information and financial reporting has become one of CFOs' biggest challenges. Given the multi-function role of CFOs, it is difficult to determine a benchmark summarizing the overall performance of CFOs. Thus, in addition to operating performance, I examine firms' financial reporting quality, misstatement risk, and numbers and accuracy of management forecasts, to depict a broader picture of CFOs' performance.

A few recent studies examine CFOs' performance on accounting quality using either the accounting restatements recorded in Accounting and Auditing Enforcement Releases (Collins et al., 2009; Burks, 2010; Feng and Ge, 2010) or the adverse SOX 404 opinions (Li et al., 2010) as proxies. However, these two types of events are relatively extreme and rare, and thus the findings may not be generalized to all other CFO turnovers. Moreover, despite the above two events both indicate poor accounting quality, their findings regarding the turnover-performance relation are mixed. Collins et al. (2009) and Burks (2010) show increased likelihood of CFO turnovers after restatements. However, Li et al. (2010) find

the likelihood of replacing a CFO for firms receiving adverse SOX 404 opinions is not higher than that for firms not receiving such opinions.

3.1   Performance Measures

I conduct analysis using performance measures covering the following three dimensions: operating activities, accounting information quality, and management forecasts. For the operating activities, I examine the return on assets (ROA) follow prior studies (Mian, 2001; Murphy and Zimmerman, 1993) and the return on equity as an alternative measure.

As for accounting information quality, two proxies are used. The first proxy is the earnings quality. In the financial accounting literature, financial statements are considered of better quality when the information better presents a firms' intrinsic value and is more helpful for analysts and investors to forecast a firm's future earnings. I follow Dechow, Sloan and Sweeney (1995) to construct the earnings quality measure (JEQ) based on firms' discretionary accruals, which proxy the extent of how different firms' discretionary accounting choices are from their industry norms. Total accruals (TA) are separated into discretionary accruals (DA) and nondiscretionary accruals (NDA). NDA is the industry benchmark of accruals that is estimated using industry-year specific parameters. Any deviation from the industry benchmark (NDA) is a firm's discretionary accruals (TA − NDA = DA). The absolute value of discretionary accruals (DA) is defined as the earnings quality. When a firm recognizes its transactions very differently from its industry peers, the DA would be larger, which represents lower earnings quality.

F-score is another examined measure to analyze the level of aggressiveness in firms' accounting choices. Based on a model incorporating financial statement variables, off-

balance-sheet items, and nonfinancial variables, Dechow et al. (2011) construct the F-score estimating the likelihood of a firm associated with accounting misstatements. They show while accrual quality is an important indicator of aggressive financial reporting, other contributing factors matter as well. While F-score is estimated from a set of AAER restatements, it delivers a good out-of-sample performance. Ge et al. (2011) use a variation of this measure to analyze the impact of CFOs' styles on the firm's risk of accounting misstatement[6]. With my focus on the duties of CFOs, I follow the model of Ge et al. (2011) to construct the F-score. I assume CFOs' overall performance in terms of reporting quality will be captured by the F-score, even if CFOs might not directly influence all components of F-score. The estimation process for both earning quality and F-score are in appendix B.

Finally, I investigate CFOs' performance on management forecasts by analyzing the total number of management forecasts and the average management forecasts errors during a fiscal year. Lee, Matsunaga, and Park (2012) find that when management forecast error is larger, CEOs are more likely to be replaced. Since CFOs monitor the generating process of financial information for constructing management forecasts, CFOs are likely to be held responsible for the performance of management forecasts and be evaluated accordingly.

3.2 Hypothesis Development

The objective of this paper is to explore the relation between CFOs and firm performance. While some firms remove executives based on their performance and make turnover decisions, there are also cases where *CFOs* initiate the turnovers based on the changes in

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[6] Ge et al. (2011) exclude the variable "soft assets", used in the model of Dechow et al (2010).

firms or industry. Due to the distinct nature behind these turnovers, the performance-turnover relations are expected to differ among different turnover categories.

First, for the promotions, I expect CFOs' good performance would increase their chances of being promoted. In these cases, firms are doing well and are likely to keep up with their current policies. As a result, I do not expect to observe significant post-turnover changes.

Hypothesis 1: Greater improvements in firm performance increase the likelihood of CFO promotions, while no significant post-turnover change is expected.

Similarly, poor performing CFOs are more likely to be replaced, especially when firms are undergoing restructuring or negative events. In both cases, firms are more likely to adopt new corporate policies or introduce changes in their business to amend their performance. Hence, significant changes following these turnovers are expected. Additionally, the post-turnover effect is expected to be stronger for firms with NE turnovers than that of firms with FR turnovers, since firms with NE turnovers are often faced with SEC enforcements and legal liabilities to make mandatory changes.

Hypothesis 2: Poor performing CFOs are likely to be replaced involuntarily when firms are experiencing restructuring or negative events (FR and NE turnovers). Under both scenarios, post-turnover changes are expected and the impact is expected to be stronger for firms with NE turnovers.

In the above two scenarios, firms initiate the turnovers. However, CFOs could also leave their positions rather than being removed by firms. On the one hand, CFOs could depart from their positions due to reasons other than their performance. For example, CFOs are

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required to retire when reaching the retirement age[7]. Other common non-work related reasons include spouse or family relocation and health concerns. Since the motivating events of these departures are not related to work responsibilities, no relation between firm performance and these turnovers are expected.

Hypothesis 3: No association is expected between CFO performance and non-work responsibility related (NWR) turnovers.

On the other hand, some CFOs choose to leave out of their own will due to changes in organizational commitment or job satisfaction. These psychological changes are induced by changes in firms' goals or values, or changes in the work environment or among the industry, which may be reflected in pre-turnover firm performance. However, as the exact trigger of the voluntary departures cannot be identified, the expected sign and degree of the pre-turnover changes remain unknown. As for post-turnover changes, if firms began carrying out their new policies prior to the turnovers and continued to keep up with their new goals, there might not be any post-turnover change in firm performance. Nonetheless, there could be post-turnover changes when new CFOs are happy with the job environment or can better identify with firms' goals. In that case, further changes in firm performance could be produced under the direction of new CFOs.

Hypothesis 4: Changes in performance are likely to increase the probability of voluntary turnovers. Significant post-turnover changes may or may not occur.

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[7] To the contrast of current financial and accounting literature, retirement is considered involuntary in the psychology studies.

Finally, within the voluntary turnovers, there might be some involuntary cases with disguise: firms could remove their CFOs but choose to make ambiguous statements. As Weibash comments (1988), it is not unusual for firms not revealing the true reason of turnovers. Since involuntary turnovers are usually caused by deteriorating performance and firms' post-turnover performance is expected to improve, the performance-turnover relation is expected to be different from the true voluntary turnovers. Thus, grouping these firings with the "true" voluntary turnovers could add noises to the analyses and potentially weaken the findings. In particular, we could learn whether the voluntary turnovers are truly voluntary: if these turnovers were essentially involuntary turnovers, then the empirical results should be similar to those of involuntary turnovers.

The expected performance-turnover relations are summarized in the following table:

<Insert Table 2>

4. Data and Control Variables

To construct the sample, I start with a list of CFOs of firms covered in Execucomp during 2002 to 2012 and find CFO turnovers during this period. However, sometimes a turnover is identified but without either the incumbent's or the newcomer's name. This is due to the data restriction of Execucomp: it only collects data regarding the top five executives of a firm in a given year and CFOs are not always ranked within the top five executives. To identify the missing CFO names and to collect further information regarding each turnover, I comb through the firm announcement synopses in Capital IQ. The additional information include the CFO age, the dates a person took over and stepped down from the CFO position (for the calculation of CFO tenure), and a brief note of events relevant to any given turnover.

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Furthermore, few additional CFOs are identified among firm announcements. Combining the hand-collected data with Compustat, CRSP, Execucomp, First Call, and Thomson Financials for firm fundamentals and performance measures, I construct a sample with 1,182 turnovers from 2002 to 2012, covering 873 firms.

<Insert Table 3>

4.1 Control variables for performance analysis: CFO and firm characteristics

Following Brickley (2010) and Mian (2001), I control the following CFO and firm characteristics for the performance-turnover relation analysis. Controlled CFO characteristics include age and tenure. CFOs are more likely depart from their positions when reaching the required age of retirement. CFOs with longer tenures have more experience and fit their companies. CFOs who do not fit their firms well will tend to leave their positions early and have a shorter tenure. As for firm characteristics, I control for market to book (market-value equity to book-value equity), size (log of market-value equity), firm age, leverage (total debt to total assets), institutional holdings (shares held by institutional investors over total outstanding shares), and CEO turnovers. Firms with higher institutional holdings face greater scrutiny and thus have less room to make inappropriate accounting choices (Chung, Firth, Kim, 2002). Additionally, these firms are more likely to issue management forecasts and have smaller management forecasts errors (Ajinkya, Bhojraj, and Sengupta, 2005). Furthermore, CEOs are likely to have impact on CFO turnover decision and CFOs may work under the pressure of CEOs (Feng et al. 2010). I control CEOs' impact with a dichotomous variable (*CEOturn*), which equals to one when there is a CEO turnover occurred in the year of CFO turnover, or during the year before.

Finally, I use the Fama French 48-industry classification to control for the industry differences.

4.2 Control variables for market reaction analysis: Concurrent news controls

In the analysis of market reaction, I control for the impact from other concurrent firm announcements to capture the market reaction to turnover announcements. I use the news synopses from Capital IQ to identify other announcements during the examined time window, the three-day period around the turnover announcements. Based on the nature of announcements and the filing requirements set by SEC, these announcements are categorized into the following groups: earnings announcements, management forecasts, required 8K filings related to financial reporting issues, other required 8K filings, voluntary 8K filings[8]. One dummy variable is created for each group to control for the specific type of announcements. As the market reaction might be larger when there are multiple announcements, I also control for the total number of concurrent announcements. If the concurrent news contains information related to the CFO turnover, then I would utilize the information to help classifying the turnover, in addition to setting up a control for this announcement. For example, if the firm announces its completion of a merger transaction and the corresponding change in the management team, I would classify this turnover in the group of "firm restructuring" and mark the indicator variable of "required 8K filings" to be one to account for the market reaction towards the merger transaction.

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[8] The mandatory 8K filings are the events required to report in a timely manner by SEC. The voluntary 8K filings are events with similar nature of significance but no filing is required by the SEC. For example, the firm announces business expansion or sales/trading statements. Details regarding these news controls are defined in the appendix.

5. Empirical Methods and Findings

I first explore how market interprets different categories of turnover announcements (section a). Next, I identify contributing performance factors affecting the likelihood of CFO turnovers for each turnover category (section b). Finally, I examine subsequent firm performance after CFO turnovers (section c).

5.1   Market reactions to different CFO turnovers

Due the difference in the nature of different CFO turnovers, the market is likely to react to these turnovers differently, in terms of both the direction and the degree of the reactions. I estimate the following regression with clustered standard errors at firm level:

$$CAR_{-1,1} = \alpha + \beta_1 * promo + \beta_2 * natrl + \beta_3 * unnatrl + \beta_4 * fmreorg + \beta_5 \\ * fmbad + \sum \beta_i * Concurrent\ News\ Control_i + \sum \beta_j \\ * Firm\ Control_j \quad (1)$$

The dependent variable is the three-day market reaction around turnover announcements, measured by cumulative abnormal returns (CARs). CARs are the sums of abnormal returns over three trading days around the turnover announcement, where the abnormal returns are the difference between firm daily returns and the CRSP value-weighted market index. I control firm characteristics including size, market-to-book ratio, firm age, and prior year annual returns. Prior studies use similar specification to examine market reaction around earnings announcements. Indicator variable for each turnover category are included as independent variables to capture the difference in reactions, if there is any.

Results in table 4 depict how market reacts to these turnover announcements differently, in terms of both degree and direction. The result stays very similar when the concurrent news controls are omitted. Investors have little reaction to NWR turnovers. This may be because most of these turnovers are routine personnel changes and are not related to firm performance per se. Under these circumstances, firms are unlikely to alter their current policies and business plans and no significant change is expected for future performance. Meanwhile, promotions imply the CFOs have produced good performance in their prior positions and thus investors expect these managers to bring positive influence onto their future duties as well.

<Insert Table 4>

On the other hand, investors are relatively more conservative about the potential upside of involuntary turnover. Their reaction towards restructuring turnovers is positive yet not significant. Furthermore, investors react negatively to CFOs involved in negative events such as fraud, insider trading, or manipulations leading to accounting restatements. While investors should react positively when these CFOs are removed, the turnover itself suggests there are potential flaws in the firms' monitoring mechanism and the mere change of CFO may not fix all problems completely. The negative reaction shows investors adjust their expectations of the firms to address the concerns. Finally, voluntary CFO turnovers are interpreted as bad signals. These departures may happen when CFOs' organizational commitment or job satisfaction declines. In either case, investors are unsure but still concerned about the unidentified changes inside the firms, which might affect future firm performance.

5.2   Contributing factors to CFO turnovers

To explore which perspective of firm performance in the current year would influence the likelihood of CFO turnovers in the next year, I estimate the following probit regression with clustered standard errors at firm and year level over the entire sample and within each turnover category. The dependent variable is the indicator variable for CFO turnovers, which equals to one if there is a CFO turnover within a specific category in a given year. For example, *promo* will equal to one if the CFO turnover is the result of his promotion. All variables are defined in appendix A.

$$\Pr\left(turnover\ indicator\ variable_{i,t+1}\right)$$
$$= \alpha + \alpha_1 * Performance_{i,t} + \sum\beta_j * CFO\ Control_{i,t} + \sum\beta_k$$
$$* Firm\ Control_{i,t} \quad (2)$$

<Insert Table 5>

The overall evidence suggests changes in operating performance have little or no impact on CFO turnovers. While larger increment in ROA decreases the likelihood of CFO turnovers, the impact is no longer significant when performance is measured by ROE. The results stay similar if the analysis is done within each turnover category individually. The irrelevance of performance is expected for NWR turnovers since most CFOs are required to retire at certain age despite of their performance. However, higher improvements in operating performance do not significantly translate into higher chances of promotions. There may be more to consider besides operating performance, such as whether there are vacancies in the higher positions. On the other hand, declines in operating performance do

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increase the likelihood of CFO turnovers as expected. Interestingly, declines in ROA also increase the likelihood of voluntary turnovers, suggesting these CFO turnovers may not be voluntary after all. If this is the case, then I expect to find significant evidence of post-turnover improvements in operating performance for voluntary turnovers in section c tests.

Estimating the regression over turnover categories separately also allows me to observe the different impact firm and CFO characteristics have on different turnovers. Mostly distinctively, CFO age only positively affects the likelihood of NWR turnovers with great significance. Meanwhile, the age factor has an opposite impact on two other turnover categories: the elder age of a CFO actually decreases his chances of being promoted or leave voluntarily with declined organizational commitment. When firms promote someone to a higher position, they would prefer a candidate who could stay in the position longer as the cost of personnel changes is high. In addition, younger CFOs might take over the CFO position without having any prior experience. Comparing to elder managers with more experience, young CFOs are more likely to find the job different from what they have expected and thus leave voluntarily. When reviewing managerial turnover studies, Brickley (2010) finds the age of managers is the most dominant factor and its impact is even greater than operating performance. He thus encourages more studies on the sensitivity of age. The results here suggest the dominant impact from the age factor on all turnovers are likely to be driven by NWR turnovers, as age does have different impact on other turnover categories.

In addition, the results show CFO tenure matters to promotions and restructuring turnovers: when the CFO tenure is longer, implying that the CFO has more experience with the firm, he is more likely to be promoted and less likely to be involuntarily removed. Furthermore,

if there is a CEO turnover in the current year or in the pre-turnover year, it is more likely that there will also be a CFO turnover in the coming year: either the CFO could be promoted to the newly vacant position, or the CFO would leave with the CEO as a team. Both scenarios are common top personnel changes for firms[9].

As for firm characteristics, larger firms are less likely to have CFOs leaving with other interests than their peers. This may be because these firms usually have more resources or even acquire professional services to identify suitable candidates when hiring executives. However, CFOs at larger firms are found more likely to resign due to accounting restatements and insider trading. Larger firms are usually under greater scrutiny as they have the attention of more investors and the SEC tends review larger firms on a regular basis (Dechow et al, 2010). Finally, firms with better corporate governance are more likely to have NWR and voluntary turnovers. Firms with higher level of monitoring are more likely to comply with the required age of retirement in company charters. Meanwhile, unfit CFOs are likely to be identified and replaced more quickly (Murphy and Zimmerman, 1999; Volpin, 2002).

The coefficients of the firm and CFO characteristics remain similar in terms of degree and significance despite of different performance measures used in the estimation model. Therefore, I omit the results for these coefficients in later tables for presentation purpose.

As for firm accounting reporting quality, I examine the changes in earnings quality derived from modified Jones model (JEQ) and the likelihood of misstatements (F-score) following

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[9] CEOs and CFOs often leave firms together as a team; however, they rarely end up working together again after the departure.

Dechow and Ge (2010). Higher JEQ means higher level of abnormal discretionary accruals and represents lower earnings quality, and higher F-score represents higher risk of accounting manipulations.

<Insert Table 6>

As expected, changes in accounting quality (AQ) have no impact on NWR CFO turnovers and the increase in F-scores (higher risk of misstatements) increases the likelihood of involuntary turnovers (FR and NE). However, there is no significant association between earnings quality and involuntary turnovers. The difference can be explained by the different compositions of the two measures: the F-score takes into account of other discretionary accounting items besides discretionary accruals, such as off-balance sheet operating leases and earnings smoothness. This suggests that firms care about accounting quality and evaluate CFOs based on their overall performance in terms of reporting quality (F-score), not merely the discretionary accruals (JEQ). However, this performance-turnover relation is not symmetric: there is no association between AQ and CFO promotions. Namely, CFOs are more likely to be replaced when the risk of misstatements is high, but they are not more likely to be promoted even if they produce accounting information of better quality.

Surprisingly, declines in F-score (decreases in risk of misstatements) increases the likelihood of voluntary turnovers. Why would a CFO more likely to depart from his position when he is delivering better quality information. There might be some ongoing changes in corporate policies or accounting choices, which lead declines in CFOs' organizational commitment or job satisfaction. One potential explanation is that firms are adopting some more aggressive accounting choices. If this were the case, then we would

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expect to see the deterioration in post-turnover accounting quality. Nevertheless, at the time of the turnover, since the exact change cannot be identified, whether the change will have a negative impact on firm performance remains unknown. Thus, investors should pay more attention to this type of CFO turnovers to learn about the underlying change. The empirical results remain similar when the F-score is estimated by the model of Dechow et al. (2001).

<Insert Table 7>

Finally, I examine CFO's performance in management forecasts. Overall, the total number of management forecasts in a given fiscal year does not have much impact on the probability of CFO turnovers, except for restructuring turnovers. CFOs delivering more management forecasts are less likely to be replace when firms are making reforms.

As for the precision of management forecast, firms seem to value CFOs' ability to produce more accurate earnings forecasts. After controlling for earnings volatility, CFOs with larger forecast errors are more likely to be replaced when involving in negative event. The results remain the same if the median of management forecast errors is used instead of the mean.

5.3 Subsequent firm performance

I explore the change in firm performance after different CFO turnovers following the model specification in Aboody et al. (2010). The regression is estimated with clustered standard errors at firm and year level over a performance matching sample. The sample is constructed as follows: for a firm with a CFO turnover at year t, I would pair it with another firm, which is in the same industry and has similar size and performance (ROA) in year t, but without the replacement of its CFO (turnover indicator variable equals zero). The

dependent variable is future change in performance, which is measured as the difference

between current-year firm performance and the future performance.

$$\Delta Performance_{i,t+m}$$

$$= \alpha + \alpha_1 * Turnover\ category_{i,t} + \alpha_2 * \Delta Performance_{i,t} + \sum \beta_j$$

$$* Firm\ Control_{i,t}\ (3)$$

where $\Delta Performance_{i,t}$ is the cumulative change in firm performance from year t to t-1

and all variables are defined in appendix A. If firms conduct CFO turnovers intending to

make changes or improvements, I expect change should be observable shortly after the

turnovers [10]. In the following tables, I present only the coefficient of interest, α_1. It

represents the difference in cumulative change in performance between CFO turnover

firms and their performance-matching peers in year t+1 and year t+2.

<Insert Table 8>

There are no significant improvements in firm operating performance subsequent to CFO

promotions. This conforms to the prior analysis where we learn that operating performance

is not the main contributing factor to the CFO promotions. Meanwhile, when comparing to

its peers, firms with NWR turnovers suffers from a decline in operating performance;

nonetheless, the decline is only significant in the first year ROA and is not observed in

ROE. It may be that new CFOs require some time to adjust to the new positions, and their

performances improve once they become more familiarized with their duties. As for firms

with involuntary turnovers, there are improvements in the post-turnover performance. In

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[10] The median tenure of CFO is about 3.5 years and the average is about 5 years. This is shorter than the average tenure of CEOs, which is longer than 7 years (Adams, Almeida, and Ferreira, 2005).

particular, firms with NE turnovers show significantly higher improvements in ROA and ROE than their matching peers do. While the improvements for restructuring firms are not as strong, the cumulative improvements in ROE catch up in the second year after the turnover year. Finally, while declines in ROA contribute voluntary turnovers, these firms do not deliver significant improvements in post-turnover operating performance. This reduces the possibility that these voluntary turnovers are in essence involuntary, as the true involuntary turnovers do deliver strong post-turnover improvements.

<Insert Table 9>

As for accounting information quality, firms with CFO promotions shows significant declines in the risk of misstatements. The once-CFO managers, who recognize the importance of good reporting quality, now utilize their power to opt for the more appropriate accounting policies. There are also signs of improving earnings quality for firms with NWR turnovers. This is likely due to the "big bath" the incoming CFOs would perform, so that they would have more room for future growth under their tenure (Geiger and North, 2006). Furthermore, the post-turnover earnings quality for firms with NE turnovers also shows lager improvements than their peers. This is as expected since many of these firms involves in misstatements and are required to make accounting restatements. In contrast, firms with FR turnovers do not deliver significantly more improvements in their accounting quality. The difference in these post-turnover changes for involuntary turnovers implies that the reforms initiated by firms themselves are less effective than those induced by the regulatory sanctions are.

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Interestingly, for firms involving voluntary CFO turnovers, their accounting quality deteriorates significantly: both the declines in earnings quality (JEQ) and the increment in misstatement risks (F-score) are significantly larger comparing to their no-turnover peers. Previously in table 6 we find declines in misstatement risks increase the likelihood of voluntary CFO turnovers. The combined evidence implies that CFOs likely resigned because of their disagreements with firms' potentially more aggressive accounting choices, which lead to the decline in CFOs' organizational commitment. The post-turnover declines in accounting quality reflect the outcome of adopting the new accounting policies. The voluntary turnovers suggest that CFOs are concerned about the deterioration in financial information quality and their associated potential legal liabilities.

To explore the potential underlying changes behind these voluntary turnovers, I examine the performance changes in firms' real activities before and after the voluntary turnovers to investigate whether the significant changes in accounting reporting quality are associated with concurrent changes in firms' real operating activities. The proxies examined are earnings volatilities and the Altman's Z-score, which estimates firms' bankruptcy risks. When firms make significant changes in their business activities, such as adopting a new business model, producing new products or exploring new markets, there might be influences on firm's stability of earnings or their ability to repay debts. These changes would likely be reflected in the financial statements. Meanwhile, the changes could also trigger variations in employees' job satisfaction or organizational commitment. However, as table 10 and 11 show, there were no significant changes in earnings volatilities and the Z-score before or after the voluntary turnovers. That is, the decline in reporting quality

appears to be a result of more aggressive accounting choices, rather than a byproduct of changes in firms' real activities.

<center><Insert Table 10 and 11></center>

Nonetheless, firms adopting some more aggressive accounting policies do not necessarily translate to committing accounting fraud, since they do have the discretionary power to choose how to recognize certain transactions to present their intrinsic value more accurately. Investors and financial analysts could view a voluntary CFO turnover as a notice of potential changes in accounting policies and consider the potential changes when making future evaluations of the firm. Feng and Ge (2010) provide a relatively extreme scenario. They show how CEOs sets the tone in the company and CFOs would perform accounting manipulations under pressures from CEOs. CFOs face significant costs such as losing their jobs if they do not comply. They further show higher CFO turnover rates for material manipulations firms during *few years prior to restatements*. As these turnovers took place prior to the restatements, rather than being the consequences of the restatements, they would fell under the category of voluntary turnovers in this study.

The final remark regarding voluntary turnovers is that there is likely to be a matching process between CFOs and firms. That is, a firm would seek a CFO who could reconcile with the firm's goals and values, rather than having a CFO changing its policies according to the CFO's style solely.

<center><Insert Table 12></center>

Lastly, when comparing to their peers, firms with CFO turnovers significantly issue less management forecasts, especially for firms with PR and voluntary turnovers. They do not deliver greater improvement in the precision of their forecasts, either. It is likely due to the inexperience of new CFOs, as they are less familiar with the firms' financial status and thus are issuing less forecasts with greater forecast errors.

6. Conclusion

Current financial and accounting studies use a bilateral framework of voluntary and involuntary turnovers. In this paper, I propose a more refined framework of CFO turnovers. In particular, I differentiate voluntary turnovers from turnovers due to non-work responsibilities and promotions. CFOs might choose to leave their positions due to dissatisfying work environment or disagreement with firms' changed goals. Combining these voluntary turnovers with promotions and NWR turnovers as in the current bilateral framework would fail to detect these potential changes and may lead to findings where the manager' age is the dominant turnover determinant. The empirical findings in this paper demonstrate the importance of distinguishing the underlying reasons behind CFO turnovers.

Using the proposed turnover framework, I demonstrate the significant relation between CFO turnovers and firm accounting reporting quality. The findings regarding voluntary turnovers are particularly interesting. Better accounting quality increases the likelihood of voluntary turnovers, while post-turnover accounting quality deteriorates significantly. This suggests firms are likely adopting some more aggressive accounting choices that the CFOs do not agree and thus leave their positions voluntarily. Additional tests are also performed to check whether there are other concurrent changes among real activities. No significant

changes are found in earnings volatilities and bankruptcy risks around these voluntary turnovers. That is, the changes are only on the books: the accounting changes are not accompanied by changes in real activities. Investors and financial analysts should pay more attention to these potential underlying accounting changes and modify their valuation models accordingly.

One possible direction for future work is to investigate further the performance-turnover relation among other executive turnovers with the more refined framework to learn about the implications of executives' changes in job satisfaction or organizational commitments on firm performance.

Appendix A – Data Definition

Turnover		Definition
turnover	CFO turnover	An indicator variable which equals to 1 when there is a CFO turnover in the fiscal year.
PR	Promotion	An indicator variable which equals to 1 if the CFO turnover is due to the promotion of the incumbent CFO.
NWR	NWR turnovers	An indicator variable which equals to 1 if the CFO turnover is due to non-work responsibilities.
volun	Voluntary turnovers	An indicator variable which equals to 1 if incumbent CFO resign voluntarily, e.g. pursue other opportunities.
FR	Restructuring	An indicator variable which equals to 1 if the CFO turnover is related to or happens around firm restructure/reorganization.
NE	Negative events	An indicator variable which equals to 1 if the CFO is replaced due to negative events, e.g. financial statement restatement, fraud.

Variables		Definition
size	Size	Log transformation of market value of equity, defined as share price times outstanding shares at end of fiscal year.
mtob	Market to book	Market value of equity to book value of equity.
levrg	Leverage	Total funded debt to total assets.
firmage	Firm age	Age of the firm, defined as the current fiscal year minus the earliest fiscal year available in Compustat.
insthld	Institutional holdings	Shares held by institutional investors over total shares outstanding at fiscal year end.
age	CFO age	Age of CFO.
ceoturn	CEO turnover	An indicator variable which equals to 1 when there is a CEO turnover in year t or t-1.
ROA	Return on assets	Operating income before depreciation over average total assets.
ROE	Return on equity	Operating income before depreciation over average common equity.
F-score	F score	A predicted probability of firm manipulating financial statements, calculated following Dechow et al.2011.
JEQ	Earnings quality	Calculated following Dechow, Sloan and Sweeney (1995)
meanferr	Mean analysts' forecast errors	Absolute value of the difference between analysts' mean forecasting error and the actual value of earnings per share.
gui_num	Number of guidance	Total number of management forecasts per year
Earn_vol	Earnings volatility	Standard deviation of quarterly operating income before depreciation from year t-1 to t-3
Z-score	Altman's Z-score	Calculated following Altman (1967). Z = 0.012T1 + 0.014T2 + 0.033T3 + 0.006T4 + 0.999T5, where T1 = Working Capital / Total Assets, T2 = Retained Earnings / Total Assets, T3 = Earnings Before Interest and Taxes / Total Assets, T4 = Market Value of Equity / Book Value of Total Liabilities, and T5 = Sales/ Total Assets.

A. Appendix B - Estimates of reporting quality

Earnings Quality

I construct the earnings quality measure (JEQ) following the model of Dechow, Sloan and Sweeney (1995). To separate the discretionary accruals from nondiscretionary accruals, I first estimate the nondiscretionary accruals by using industry-year specific parameters. Firms are sorted under the framework of Fama-French 48 industry classification. The following regression is run for each industry-year with at least 20 firm observations:

$$TA_{i,t} = \frac{\alpha_{1,t}}{asset_{i,t-1}} + \alpha_{2,t} * chg\ in\ REV_{i,t} + \alpha_{3,t} * ppegt_{i,t}$$

Then, the estimates of the above industry-year specific parameters are used to estimate the firm-year specific nondiscretionary accruals (NDA).

$$NDA_{i,t} = \frac{\widehat{\alpha_{1,t}}}{asset_{i,t-1}} + \widehat{\alpha_{2,t}} * (chg\ in\ REV_{i,t} - chg\ in\ AR_{i,t}) + \widehat{\alpha_{3,t}} * ppegt_{i,t}$$

Finally, the discretionary accruals are

$$DA_{i,t} = TA_{i,t} - NDA_{i,t}$$

and the earnings quality measure JEQ is

$$JEQ_{i,t} = |DA_{i,t}|.$$

The variables in the above model are defined as follows:

Variables	Definition
Chg in CA	Change in current assets
Chg in CL	Change in current liabilities
Chg in cash	Change in cash
Chg in STDT	Change in short-term debts
Chg in REV	Change in revenues over total assets at the end of previous fiscal year
Chg in AR	Change in accounts receivables
dp	Depreciation and amortization expense
NIBE	Net income before extraordinary items
asset	Total assets
ppegt	Gross value of property, plany and equipment over total assets at the end of previous fiscal year
TA	(chg in CA – chg in CL – chg in cash + chg in STDT – dp) / total assets at the end of previous fiscal year average total assets

F-score

The F-score is calculated by putting values of firm characteristics over years into the following model, which uses the estimated coefficients in Ge et al. (2011):

$$Manipulation_{i,t}$$
$$= -7.184 + 0.702 * RSST\ accruals_{i,t} + 3.035$$
$$* change\ in\ receivables_{i,t} + 2.678 * change\ in\ inventory_{i,t} + 0.105$$
$$* change\ in\ cash\ sales_{i,t} - 1.124 * change\ in\ ROA_{i,t} + 0.839$$
$$* actual\ issuance_{i,t} - 0.199 * abnormal\ change\ in\ employees_{i,t}$$
$$+ 0.615 * existence\ of\ operating\ leases_{i,t}$$

$$Predicted\ probability_{i,t} = \frac{e^{predicted\ manipulation_{i,t}}}{1 + e^{predicted\ manipulation_{i,t}}}$$

$$F - score_{i,t} = \frac{predicted\ probability_{i,t}}{uncontitional\ probibility}$$

The variables in the above model are defined as follows:

Variable	Definition
RSST accruals	Follow the definition in Dechow et al. (2011): (DWC + DNCO + DFIN)/Average total assets, where WC = [Current Assets– Cash and Short-term Investments] – [Current Liabilities - Debt in Current Liabilities], NCO = [Total Assets –Current Assets) Investments and Advances] – [Total Liabilities– Current Liabilities - Long-term Debt], FIN=[Short-term Investments +Long-term Investments]– [Long-term Debt + Debt in Current Liabilities + Preferred Stock]
Change in receivables	Change in accounts receivables over average total assets
Change in inventory	Change in inventory over average total assets
Change in cash sales	Percentage change in cash sales [sales – change in accounts receivables]
Change in ROA	Percentage change in ROA [Operating income before depreciation over average total assets]
Actual issuance	An indicator variable which equals to 1 if the firm issues new debt or equity during the year
Abnormal change in employees	Percentage change in the number of employees- percentage change in total assets
Existence of operating leases	An indicator variable which equals to 1 if future operating leases is greater than zero
Unconditional probability	Number of misstatement firms divided by total number of firms

B. Appendix C – Tables

Table 1

Turnover Categories
The sample in this study contains 1,288 CFO turnovers from Capital IQ and Execucomp during 2002 to 2012. This table presents the distribution of 969 CFO turnovers among different categories based on news synopses in Capital IQ. Detailed information for the remaining 319 CFO turnovers is not available.

Turnover Categories		
Category	Number of turnovers	Percentage
1. Promotion	183	18.8%
2. NWR turnovers	388	40.0%
3. Voluntary	314	32.4%
4. Restructuring	70	7.2%
5. Negative events	14	1.4%
All	969	100%

Table 2

Predicted impact from prior year firm performance on CFO turnovers

Turnover Categories	Prior-turnover change in firm performance	Post-turnover change in firm performance
Promotions	↑	−
Non-work responsibility (NWR)	−	−
Voluntary	?	?
Firm restructuring (FR)	↓	↑
Negative events (NE)	↓	↑

Table 3

Descriptive Statistics
The overall sample contains 7,564 firm-year observations with data from Capital IQ, Compustat, CRSP, Execucomp, and Thomson Reuters. The sample period is 2002 to 2012. Please refer to appendix A for definition of variables.

Variable	Entire Sample				Promotions				NWR			
	n	Mean	S.D.	Mdn	n	Mean	S.D.	Mdn	n	Mean	S.D.	Mdn
Market to book	7564	2.73	3.45	2.04	183	2.89	3.8	1.9	388	2.78	3.23	2.1
Size	7564	7.64	1.62	7.53	183	7.88	1.56	7.86	388	7.8	1.52	7.76
Leverage	7557	0.21	0.21	0.19	183	0.24	0.17	0.22	387	0.2	0.18	0.18
Firm age	7564	18.42	4.41	19	183	18.62	4.26	19	388	18.55	4.17	19
Institutional holdings	7564	0.76	0.2	0.79	183	0.77	0.21	0.79	388	0.78	0.19	0.81
CFO tenure	7564	5.32	4.87	3.5	183	7.76	5.55	6	388	10	5.47	11.01
CFO age	7564	50.03	6.61	50	143	50.28	6.68	50	299	57.12	6.07	58

Variable	Restructuring				Negative Events				Voluntary			
	n	Mean	S.D.	Mdn	n	Mean	S.D.	Mdn	n	Mean	S.D.	Mdn
Market to book	70	2.53	3.28	1.9	14	1.51	2.84	1.68	314	2.27	3.24	1.88
Size	70	7.6	1.85	7.65	14	8.33	1.88	8.31	314	7.19	1.63	7.18
Leverage	70	0.28	0.36	0.22	14	0.26	0.26	0.16	314	0.22	0.22	0.18
Firm age	70	18.19	4.58	18	14	17.07	3.91	18	314	18.04	4.05	18
Institutional holdings	70	0.76	0.22	0.8	14	0.73	0.27	0.8	314	0.77	0.22	0.8
CFO tenure	70	5.43	5.39	2.52	14	6.09	5.36	3.32	313	5.21	4.94	3.08
CFO age	52	49.63	6	50	8	50.5	5.37	50.5	215	48.81	5.97	49

Table 4

Market reactions to CFO turnover announcements
This table shows the results of the OLS regression examining stock market's reaction to CFO turnover announcements. The dependent variable is the cumulative abnormal stock return during the three-day period around turnover announcements. Control variables are measured at the end of prior fiscal year. T-stats are reported under each coefficients. Statistical significance is based on the clustered standard errors at both firm and year level. ***, **, and * denote the significance level at 1%, 5%, and 10%, respectively. All variables are defined in appendix A.

$$CAR_{-1,1} = \alpha + \beta_1 * PR + \beta_2 * NWR + \beta_3 * Voluntary + \beta_4 * FR + \beta_5 * NE + \sum \beta_i * Concurrent\ News\ Control_i + \sum \beta_j * Firm\ Control_j$$

	Dependent variable: three-day cumulative abnormal returns		
	Model 1	Model 2	Model 3
Promotions (PR)	0.005 **	0.005 *	0.005 *
	2.203	1.787	1.724
NWR	-0.004	-0.004	-0.004
	-1.361	-1.382	-1.426
Voluntary	-0.004	-0.004	-0.004 *
	-1.211	-1.304	-1.655
Restructuring (FR)	0.032	0.032	0.033
	1.542	1.641	1.608
Negative events (NE)	-0.042 ***	-0.042 ***	-0.041 ***
	-7.127	-6.773	-4.505
ROA	-0.001	-0.001	-0.001
	-0.914	-0.901	-0.872
M/B	0.001	0.001	0
	0.859	0.634	0.148
Size	0.016 ***	0.016 ***	0.016 ***
	2.958	2.836	2.743
Firm age	0.001	0.001	0.001
	0.852	0.871	0.764
Concurrent news announcements		0	0.001
		0.094	0.394
Earnings announcements			-0.003
			-0.581
Mgmt guidance announcements			-0.001
			-0.635
Required 8K filings – reporting			-0.017
			-0.679
Required 8K filings – non-reporting			0.017
			0.742
Voluntary 8K filings			-0.005
			-0.568
N	1250	1250	1250
Adj. R	0.016	0.015	0.015
F	5.049	4.642	2.618
p-value	0	0	0.001

Table 5
Contributing factors to different CFO turnovers: operating performance
This table shows the results of the pooled regression for the probit model estimating the relation between CFO operating performance and future turnovers. The dependent variable is a dichotomous variable that equals to one if in the next fiscal year; there is a CFO turnover under the specified turnover category and zero otherwise. Control variables are measured at the current fiscal year. T-stats are reported under each coefficients. Statistical significance is based on the clustered standard errors at both firm and year level. ***, **, and * denote the significance level at 1%, 5%, and 10%, respectively. All variables are defined in appendix A.

$$\Pr(turnover\ dichotomous\ variable_{i,t+1})$$
$$= \alpha + \alpha_1 * \Delta Performance_{i,t} + \sum\beta_j * CFO\ Control_{i,t} + \sum\beta_k * Firm\ Control_{i,t}$$

Panel A: Prior year change in ROA
Dependent dichotomous variable: 1 if within the specified turnover category

	All	Promotions	NWR	Voluntary	Restructuring	Negative events
Change in ROA	-0.387 ***	-0.825	0.143	-0.816 *	-0.453	-1.193
	-3.093	-1.579	0.263	-1.713	-0.539	-0.834
M/B	-0.005	0.001	-0.003	-0.013	-0.001	-0.055 ***
	-1.045	0.109	-0.257	-1.546	-0.042	-3.443
Size	-0.061 ***	0.027	0.01	-0.107 ***	-0.022	0.082 *
	-3.633	1.57	0.707	-5.559	-0.54	1.652
Firm age	0.026 ***	0.029 **	0.024 ***	0.009	0.002	-0.043
	2.89	2.301	2.881	0.651	0.345	-1.214
Leverage	0.217 ***	0.146	-0.095	0.013	0.43 *	-0.003
	2.875	0.905	-0.404	0.104	1.733	-0.006
Inst. Hold.	0.124	0.061	0.283 **	0.313 *	-0.078	-0.377
	1.289	0.367	2.395	1.792	-0.43	-0.889
CEO turn	0.34 ***	0.212 **	0.191 **	0.328 ***	0.222 *	0.344 ***
	6.037	2.338	2.452	4.99	1.735	2.867
Tenure	0.043 ***	0.047 ***	0.06 ***	0	-0.018 **	-0.002
	5.748	10.189	9.505	0.056	-1.969	-0.063
Age	0.019 ***	-0.012 **	0.069 ***	-0.01 **	0.002	0.005
	6.573	-2.145	17.347	-2.323	0.297	0.387
N	7178	7178	7178	7178	7178	7178
Pseu. R	0.054	0.037	0.197	0.033	0.023	0.062

Panel B: Prior year change in ROE
Dependent dichotomous variable: 1 if within the specified turnover category

	All	Promotions	NWR	Voluntary	Restructuring	Negative events
Change in ROE	0.016	-0.018	0.024	-0.013	0.034	-0.034 **
	0.561	-0.513	0.323	-0.525	0.488	-2.072
M/B	-0.006	0	-0.003	-0.013	-0.001	-0.054 ***
	-1.286	-0.025	-0.215	-1.454	-0.119	-3.277
Size	-0.061 ***	0.023	0.012	-0.105 ***	-0.024	0.082 *
	-3.687	1.468	0.803	-5.872	-0.7	1.787
Firm age	0.026 ***	0.03 **	0.024 ***	0.008	0.003	-0.043
	2.824	2.327	2.855	0.618	0.411	-1.221
Leverage	0.22 ***	0.167	-0.107	0.003	0.446 *	-0.018
	2.743	1.171	-0.459	0.026	1.939	-0.042
Inst. Hold.	0.122	0.039	0.288 ***	0.321 *	-0.099	-0.365
	1.388	0.254	2.677	1.907	-0.576	-0.951
CEO turn	0.34 ***	0.216 **	0.188 **	0.327 ***	0.224 *	0.344 ***
	5.992	2.378	2.462	5.05	1.748	3.003
Tenure	0.043 ***	0.047 ***	0.06 ***	0	-0.018 **	-0.002
	5.789	10.374	9.965	0.059	-1.992	-0.076
Age	0.018 ***	-0.012 **	0.069 ***	-0.01 **	0.002	0.006
	6.588	-2.109	17.092	-2.334	0.334	0.391
N	7178	7178	7178	7178	7178	7178
Pseu. R	0.055	0.037	0.198	0.032	0.023	0.062

Table 6

Contributing factors to different CFO turnovers: accounting quality

This table shows the results of the pooled regression for the probit model estimating the relation between CFO performance in terms of accounting quality and future turnovers. The dependent variable is a dichotomous variable, which equals to one if in the next fiscal year; there is a CFO turnover under the specified turnover category and zero otherwise. Control variables are measured at the current fiscal year. Coefficients of control variables are omitted for presentation purpose. T-stats are reported under each coefficients. Statistical significance is based on the clustered standard errors at both firm and year level. ***, **, and * denote the significance level at 1%, 5%, and 10%, respectively. All variables are defined in appendix A.

$$\Pr\left(turnover\ dicotomous\ variable_{i,t+1}\right) = \alpha + \alpha_1 * \Delta Accounting\ quality_{i,t} + \sum\beta_j * CFO\ Control_{i,t} + \sum\beta_k * Firm\ Control_{i,t}$$

Dependent dichotomous variable: 1 if within the specified turnover category

	All	Promotions	NWR	Voluntary	Restructuring	Negative Events
Change in JEQ	-0.051	0.018	-0.086	-0.042	0.053	-0.279
	-1.575	0.334	-1.003	-1.015	0.695	-1.489
N	5834	5834	5834	5834	5834	5834
Pseu. R	0.054	0.038	0.198	0.034	0.014	0.119
Change in F-score	-0.02	0.144	0.007	-0.233 ***	0.212 ***	0.243 ***
	-0.261	1.094	0.065	-3.462	3.03	11.285
N	4612	4612	4612	4612	4612	3853
Pseu. R	0.056	0.049	0.187	0.043	0.032	0.081

Table 7

Contributing factors to different CFO turnovers: management forecasts
This table shows the results of the pooled regression for the probit model estimating the relation between CFO performance in terms of management forecasts and future turnovers. The dependent variable is a dichotomous variable, which equals to one if in the next fiscal year; there is a CFO turnover under the specified turnover category and zero otherwise. g*ui_num* represents the number of management forecasts in a given fiscal year. *meanferr* is the mean of management earnings forecast errors in a given fiscal year. The earnings volatility is measured using the quarterly earnings during the most recent three years. Control variables are measured at the current fiscal year. Coefficients of control variables are omitted for presentation purpose. T-stats are reported under each coefficients. Statistical significance is based on the clustered standard errors at both firm and year level. ***, **, and * denote the significance level at 1%, 5%, and 10%, respectively. All variables are defined in appendix A.

$$\Pr\left(\text{turnover dicotomous variable}_{i,t+1}\right)$$
$$= \alpha + \alpha_1 * \Delta Management\ forecast\ quality_{i,t} + \alpha_2 * Earnings\ volatility_{i,t} + \sum\beta_j$$
$$* CFO\ Control_{i,t} + \sum\beta_k * Firm\ Control_{i,t}$$

Dependent dichotomous variable: 1 if within the specified turnover category						
	All	Promotions	NWR	Voluntary	Restructuring	Negative events
Change in gui_num	-0.022	-0.018	-0.012	-0.015	-0.044 *	-0.012
	-1.242	-0.858	-0.585	-0.63	-1.73	-0.221
N	4859	4859	4859	4859	4859	4859
Pseu. R	0.061	0.041	0.209	0.035	0.026	0.099
Change in meanferr	-0.007	0.17 **	-0.104	0.031	-0.293 **	0.266 **
	-0.101	1.982	-1.01	0.326	-2.225	2.099
N	4697	4697	4697	4697	4697	4697
Pseu. R	0.061	0.041	0.217	0.033	0.03	0.142

Table 8

Relation between subsequent firm performance and CFO turnovers: operating performance

This table shows the results of the pooled regression for the OLS model estimating the relation between CFO turnovers and subsequent firm performance. The test sample is the performance-matching sample, where each turnover firm-year is matched to a non-turnover firm-year observation based on industry, size and ROA. The dependent variable is the difference between firm performance in year t and $t+i$, where $i=1,2$. Control variables are measured at the current fiscal year. Coefficients of control variables are omitted for presentation purpose. T-stats are reported under each coefficients. Statistical significance is based on the clustered standard errors at both firm and year level. ***, **, and * denote the significance level at 1%, 5%, and 10%, respectively. All variables are defined in appendix A.

$$\Delta Performance_{i,t+m} = \alpha + \alpha_1 * Turnover\ D_{i,t} + \alpha_2 * \Delta Performance_{i,t} + \sum \beta_j * Firm\ Control_{i,t}$$

Panel A: return on assets

	All	Promotions	NWR	Voluntary	Restructuring	Negative events
			Dependent variable: ΔROA_{t+1}			
turnoverD	-0.001	0.008	-0.018 ***	0.003	0.007	0.042 **
	-0.451	0.986	-6.173	0.541	0.981	2.355
N	1423	206	466	372	86	17
Adj. R	0.025	-0.007	0.033	0.057	0.083	0.128
			Dependent variable: ΔROA_{t+2}			
turnoverD	0	0.014	-0.007	0	0.011	-0.028
	0.101	1.59	-1.186	-0.027	0.691	-1.001
N	1118	157	376	290	67	13
Adj. R	0.043	0.001	0.029	0.168	0.069	-0.04

Panel B: return on equity

	All	Promotions	NWR	Voluntary	Restructuring	Negative events
			Dependent variable: ΔROE_{t+1}			
turnoverD	-0.024	-0.023	-0.08	-0.037	-0.049	0.281 **
	-0.677	-0.48	-1.234	-1.339	-0.848	2.902
N	1423	206	466	372	86	17
Adj. R	0.27	0.557	0.368	0.319	0.47	0.536
			Dependent variable: ΔROE_{t+2}			
turnoverD	0.037	0.016	0.035	-0.092	0.253 **	0.585 ***
	0.662	0.292	0.446	-1.212	2.205	10.407
N	1118	157	376	290	67	13
Adj. R	0.314	0.465	0.099	0.495	0.353	0.759

Table 9

Relation between subsequent firm performance and CFO turnovers: accounting quality
This table shows the results of the pooled regression for the OLS model estimating the relation between CFO turnovers and subsequent firm accounting quality. The test sample is the performance-matching sample, where each turnover firm-year is matched to a non-turnover firm-year observation based on industry, size and ROA. The dependent variable is the difference between firm performance in year t and $t + i$, where $i = 1,2$. Control variables are measured at the current fiscal year. Coefficients of control variables are omitted for presentation purpose. T-stats are reported under each coefficients. Statistical significance is based on the clustered standard errors at both firm and year level. ***, **, and * denote the significance level at 1%, 5%, and 10%, respectively. All variables are defined in appendix A.

$$\Delta Performance_{i,t+m} = \alpha + \alpha_1 * Turnover\ D_{i,t} + \alpha_2 * \Delta Accounting\ quality_{i,t} + \sum \beta_j * Firm\ Control_{i,t}$$

Panel A: Earnings quality

	Dependent variable: ΔJEQ_{t+1}					
	All	Promotions	NWR	Voluntary	Restructuring	Negative events
turnoverD	-0.027	0.032	-0.058	0.098 *	0.029	-0.303
	-0.622	0.471	-0.592	1.924	0.283	-1.617
N	1149	150	374	323	70	13
Adj. R	0.165	0.193	0.135	0.079	0.454	-0.362

	Dependent variable: ΔJEQ_{t+2}					
turnoverD	-0.008	0.032	-0.117 ***	0.084 ***	0.121	-0.587 *
	-0.32	0.279	-3.491	2.782	0.527	-2.528
N	884	115	295	235	45	10
Adj. R	0.211	0.249	0.179	0.319	0.176	-0.474

Panel B: F-score

	Dependent variable: $\Delta fscore_{t+1}$					
	All	Promotions	NWR	Voluntary	Restructuring	Negative events
turnoverD	-0.019	0.044	-0.01	0.066 **	-0.058	-1.518
	-0.809	1.311	-0.198	2.361	-1.315 .	
N	876	123	278	258	48	7
Adj. R	0.159	0.083	0.084	0.154	0.531 .	

	Dependent variable: $\Delta fscore_{t+2}$					
turnoverD	0.004	-0.145 ***	-0.017	0.045	0.063	
	0.162	-4.298	-0.468	1.403	0.993	
N	646	89	210	189	33	4
Adj. R	0.151	0.351	0.124	0.058	0.621 .	

Table 10

Firm real activity performance prior to voluntary CFO turnovers
This table shows the results of the pooled regression for the OLS model estimating the relation between voluntary CFO turnovers and pre-turnover performance in firm real activities. The performance proxies are the earnings volatility and Altman's Z-score. The test sample includes all firm-years in the sample. The dependent variable is the difference between firm performance in year t and $t - i$, where $i = 1,2$. $Earnings\ volatility_{i,t}$ is the standard deviation of quarterly earnings from year *t-1* to year *t-3*. *Z-score* is the proxy of the likelihood of bankruptcy. Control variables include size, market-to-book ratio, and institutional holdings; the variables are measured at the current fiscal year. Coefficients of control variables are omitted for presentation purpose. T-stats are reported under each coefficients. Statistical significance is based on the clustered standard errors at both firm and year level. ***, **, and * denote the significance level at 1%, 5%, and 10%, respectively. All variables are defined in appendix A.

$$\Delta Performance_{i,t-m} = \alpha + \alpha_1 * Turnover\ D_{i,t} + \alpha_2 * \Delta Performance_{i,t} + \sum \beta_j * Firm\ Control_{i,t}$$

Dependent variable: cumulative change at t-2		
	Earnings Volatility	Z-score
Voluntary turnover	0.353	0.016
	0.057	0.837
N	4935	3464
Adj. R-square	0.026	0.042

Dependent variable: cumulative change at t-1		
	Earnings Volatility	Z-score
Voluntary turnover	3.246	-0.009
	0.801	-1.145
N	6216	4383
Adj. R-square	0.013	0.03

Table 11

Firm real activity performance after voluntary CFO turnovers
This table shows the results of the pooled regression for the OLS model estimating the relation between voluntary CFO turnovers and post-turnover performance in firm real activities. The performance proxies are the earnings volatility and Altman's Z-score. The test sample is the performance-matching sample, where each turnover firm-year is matched to a non-turnover firm-year observation based on industry, size and ROA. The dependent variable is the difference between firm performance in year t and $t + i$, where $i = 1,2$. $Earnings\ volatility_{i,t}$ is the standard deviation of quarterly earnings from year *t-1* to year *t-3*. *Z-score* is the proxy of the likelihood of bankruptcy. Control variables include size, market-to-book ratio, and institutional holdings; the variables are measured at the current fiscal year. Coefficients of control variables are omitted for presentation purpose. T-stats are reported under each coefficients. Statistical significance is based on the clustered standard errors at both firm and year level. ***, **, and * denote the significance level at 1%, 5%, and 10%, respectively. All variables are defined in appendix A.

$$\Delta Performance_{i,t+m} = \alpha + \alpha_1 * Turnover\ D_{i,t} + \alpha_2 * \Delta Performance_{i,t} + \sum \beta_j * Firm\ Control_{i,t}$$

Dependent variable: cumulative change at t+1		
	Earnings Volatility	Z-score
Voluntary turnover	6.182	-0.016
	1.142	-0.616
N	275	231
Adj. R-square	0.025	-0.001

Dependent variable: cumulative change at t+2		
	Earnings Volatility	Z-score
Voluntary turnover	-4.807	0.004
	-0.815	0.186
N	225	185
Adj. R-square	0.005	0.011

Table 12

Relation between subsequent firm performance and CFO turnovers: management forecasts
This table shows the results of the pooled regression for the OLS model estimating the relation between CFO turnovers and subsequent firm performance in management forecasts. The test sample is the performance-matching sample, where each turnover firm-year is matched to a non-turnover firm-year observation based on industry, size and ROA. The dependent variable is the difference between firm performance in year t and $t + i$, where $i = 1,2$. gui_num represents the number of management forecasts in a given fiscal year. *meanferr* is the mean of management earnings forecast errors in a given fiscal year. The earnings volatility is measured using the most recent three years of earnings. Control variables are measured at the current fiscal year. Coefficients of control variables are omitted for presentation purpose. T-stats are reported under each coefficients. Statistical significance is based on the clustered standard errors at both firm and year level. ***, **, and * denote the significance level at 1%, 5%, and 10%, respectively. All variables are defined in appendix A.

$$\Delta Performance_{i,t+m} = \alpha + \alpha_1 * Turnover\ D_{i,t} + \alpha_2 * \Delta Mgmt\ forecats_{i,t} + \alpha_3 * Earnings\ volatility_{i,t} + \sum \beta_j * Firm\ Control_{i,t}$$

Panel A: total number of management forecasts

	Dependent variable: Δgui_num_{t+1}					
	All	Promotions	NWR	Voluntary	Restructuring	Negative events
turnoverD	-0.091	-0.21	-0.009	-0.403 *	-0.114	
	-0.598	-0.454	-0.049	-1.974	-0.285	
N	756	121	297	166	39	5
Adj. R	0.12	0.039	0.136	0.192	-0.154	.

	Dependent variable: Δgui_num_{t+2}					
turnoverD	-0.272	-1.06 **	-0.138	-0.404	-0.349	
	-1.452	-2.433	-0.313	-0.949	-0.624	
N	550	87	227	115	29	4
Adj. R	0.182	0.216	0.117	0.277	-0.26	.

Panel B: mean of management forecast errors

	Dependent variable: $\Delta mean\_ferr_{t+1}$					
	All	Promotions	NWR	Voluntary	Restructuring	Negative events
turnoverD	0.026	0.051	-0.004	0.071 **	0.052	
	0.804	0.734	-0.084	2.027	1.338	
N	723	120	286	155	37	3
Adj. R	0.202	0.086	0.295	0.313	0.635	.

	Dependent variable: $\Delta mean\_ferr_{t+2}$					
turnoverD	0.001	-0.046	0.064 **	0.041	0.075	
	0.043	-0.361	2.032	0.544	1.484	
N	527	86	217	109	28	3
Adj. R	0.144	0.267	0.175	0.019	0.316	.

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