

# Cash Signing Bonus, Managerial Ability, and Corporate Performance \*

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## Abstract

This paper uses hand-collected data to study CEOs' cash signing bonus. Our empirical findings suggest that issuing cash signing bonus is not associated with firms' free cash flow but is positively correlated with CEOs' managerial ability. Specifically, CEOs with deeper industrial experience and higher general managerial ability are more likely to receive cash signing bonus. Moreover, those managerial abilities are valued by the stock market, and contribute to firms' long-term performance.

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*Keywords:* Executive Compensation, Cash Signing Bonus, Managerial Ability

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## 1 Introduction

What is the function of managerial compensation? Arising from agency-principal relationship, *Agency Problem* requests a proper design of managerial compensation to motivate managers. Previous literature argue that performance-based compensations could align managers' interest with shareholders' wealth since the magnitude of managers' human capitals varies with firm performances (Jensen, 1990). Empirical evidences suggest that equity-based performance is positive related to firm performance (Mehran, 1995). Moreover, CEOs with higher proportion of equity-based compensation are less likely to conduct unsuccessful merge and acquisition (Bliss and Rosen, 2001) and pay lower acquisition premiums to acquire prospective target with higher growth opportunities (Datta, Iskandar-Datta, Raman, 2001). In terms of other types of managerial compensation, inside debt may reduce CEO's risk-taking activities (Cassel, Huang, Manuel Sanchez, Stuart, 2012) while option portfolios with higher vega increase CEO's preference of risky projects (Coles, Daniel, Naveen, 2006).

Nevertheless, the function of managerial perks, compensations that are not linked to firm performance, is ambiguous. Opponents of managerial perks argue that managerial consumption may reduce firm value since it transforms shareholders' wealth to the manager, resulting in a *Free Cash Flow Problem* (Jensen, 1986 and Liang et al., 1991). Furthermore, entrenched managers may overuse the perquisites simply due to their personal preference without enhancing managerial productivity (Yermack, 2006a). In contrast, proponents suggest that managers are less likely to be overpaid as managers could only smooth consumption within the limitation of their overall human capital and labor market could dynamically evaluate managerial performance through an *Ex Post Settlement* (Fama, 1980). In addition,

managerial perquisites and perks could serve as irreplaceable compensation tool due to their specific incentive function, e.g. improving managerial productivity through personal use of corporate jet (Rajan and Wulf, 2006; Chen, Li, Liang, 2010).

This paper focuses on CEOs' cash signing bonus—"Golden Hello", which is an one-time compensation for the executive when signing the employment contract. Firms could determine the type of signing bonus by granting one-time equity package, cash, or a combined package with both cash and equity to their CEO. Equity signing bonus is performance linked thereby motivating succeed CEO to enhance firm performance.

However, the purpose of cash signing bonus is unclear with of a direct incentive function. Firstly, it subject to *Free Cash Flow* criticism as an one-time payment with short claw-back <sup>1</sup> period does not directly enhance managerial productive. Overusing cash signing bonus could reflect a poor corporate governance regarding the design of compensation policy and transfer shareholders' wealth to succeed candidate. One attention-catching news is the signing bonus issued by Hewlett-Packard to its former CEO Leo Apotheker. *CNN Money* comments the firm's CEO replacement procedure as a cost of the firm's fortune.

*"On the job as chief executive for not even 11 months, Leo Apotheker will leave HP a wealthy man: He has already taken home most of his \$1.2 million annual salary, a \$4 million signing bonus, and an additional \$4.6 million awarded for relocation assistance and to offset payments that he forfeited from his previous employer, SAP."* <sup>2</sup>

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<sup>1</sup>Claw-back period refers to duration that candidates need to return cash signing bonus if candidate leave the company without good reason defined by employment contracts. The average claw-back period of our sample is 18 month.

<sup>2</sup>Cited from CNNMoney "HP's ousted CEO will take home \$25 million", 22 Sep 2011,

Secondly, cash signing bonus could be a neutral compensation component under the *Ex Post Settlement* (Fama, 1980). *Ex Post Settlement* hypothesis argues that labor market is efficient and firms could unbiased evaluate managers' human capital based on existing managerial performance. If managers extract excessive compensation through perks but do not enhance subsequent managerial productivity, then firm could reduce managers' compensation in the next period based on ex post managerial performance. Under *Ex Post Settlement*, managerial compensation reflects market expectation of managers' human capital. It also predicts that managers are hardly to extract excessive compensation continuously as labor market could reduce the subsequent excessive compensation based on updated information.

Thirdly, comparing with equity signing bonus, cash signing bonus could quickly reimburse immediate and tremendous job transition cost such as relocation cost, attorney fee, or human capital that the candidate forfeited from previous employers. Therefore, cash signing bonus could be an outcome of negotiation under labor equilibrium. In detail, candidates with outstanding managerial ability require enough reimbursement to cover larger opportunity cost due to job transition. From firms' perspective, cash signing bonus incurs upfront and immediate cash outflows. Thus, to balance the return and cost, firms would only issue cash signing bonus to CEOs with outstanding managerial ability.

In this paper, we try to distinct the motivation of issuing cash signing bonus based on the above arguments. We study the use of signing bonus among S&P 1500 firms<sup>3</sup> from 1992 to 2015. We identify 1474 events of CEO turnover, of which 318 events issue signing bonus package to the succeed

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[http://money.cnn.com/2011/09/22/technology/hp\\_leo\\_apotheker\\_severance/](http://money.cnn.com/2011/09/22/technology/hp_leo_apotheker_severance/).

<sup>3</sup>We exclude financial firms from our sample.

CEO. Information of CEOs' signing bonus package comes from CEOs' employment arrangement documented in SEC files namely 8-K and DEF 14A. We further decompose the package into equity and cash parts to distinguish the effect of performance-based equity payment and non-performance linked cash payment <sup>4</sup>.

We find that cash signing bonus is more popular among U.S. listed firm comparing with equity signing bonus. In detail, within the sample issuing signing bonus, 65.09% only issue cash signing bonus while only 13.21% and 21.70% reward equity signing bonus and a combined package respectively. And there are distinct industrial preferences for signing bonus types. For example, auto repair, services, and parking industry prefers cash signing bonus while nonmetallic minerals industry prefers equity signing bonus.

Our univariate test shows that CEO who receiving cash signing bonus exhibit competitive managerial ability in terms of general managerial skill and industry experience. We argue that cash signing bonus is a negotiation outcome under labor market equilibrium. Job candidates naturally prefer cash signing bonus as it has less restrictions compared with equity and symbols trust from board as well as reputation in the labor market. From the perspective of corporate, issuing cash signing bonus incurs immediate upfront cost. Therefore, firms would only issue cash signing bonus to CEOs with higher managerial ability. For instance, Patricia A. Woertz received 1.5 million USD when she became the CEO of Archer Daniels Midland Co. (ADM) and she leaded a sharp increase of ADM's operational performance. *"In her time at Archer Daniels Midland, company shares climbed 39 percent,*

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<sup>4</sup>We also deduct the effect of job transition cost namely relocation fee and attorney fee from the cash signing bonus and include market value of the shares from option signing bonus package into equity signing bonus for robustness tests.

and revenue rose to \$89.8 billion in 2013 a boost of nearly 150 percent over the \$26 billion in revenue the year before she took the top post.”<sup>5</sup>

To test this hypothesis, we conduct a series of empirical tests. We first test the relationship between managerial ability and the probability of issuing signing bonus. Probit regression suggests that the probability of issuing cash signing bonus is positively correlated with CEOs’ industry exposure and general managerial ability. The result still holds controlling for alternative theoretical determinants. One may argue that big firms with higher performance are more able to issue cash signing bonus to CEO candidate, resulting in a potential endogeneity issue. To release the endogeneity problem, we control for firm fixed effect in our model and the result still holds.

Moreover, the amount of cash signing bonus increases as the length of industry exposure and the extent of general managerial ability. An one-standard-deviation increase in industry exposure and CEO leadership increases cash signing bonus ratio (scaled by first-year base salary) by 2.2 times and 2.34 times respectively. However, firm-level characteristics such as free cash flow level do not significantly affect the motivation of issuing cash signing bonus.

An alternative explanation is that firms with poor corporate governance are more likely to give signing bonus to new CEO. To test this hypothesis, we study CEOs’ subsequent excessive compensation. Under *Ex Post Settlement*, firms could actively control for CEOs’ compensation as the labor market is efficient and firms could adjust CEOs’ subsequent compensation based on ex post managerial performance. If it is due to poor corporate governance,

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<sup>5</sup>Cited from Bizwomen “3 big moments for Patricia Woertz, outgoing CEO of agriculture giant Archer Daniels Midland” written by Caroline McMillan Portillo, Nov 7, 2014, <http://www.bizjournals.com/bizwomen/news/latest-news/2014/11/3-big-moments-for-patricia-woertz-outgoing-ceo-of.html?page=all>.

then CEOs' are more likely to continuously extract excessive compensation. However, we find no evidence supporting the poor corporate governance hypothesis. CEOs who received cash signing bonus are less over-compensated subsequently. An one-percent increase of cash signing bonus ratio decrease subsequent excessive-compensation by 1.84%.

We conduct an event study to test market reaction around CEO turnover. The result shows that stock market reacts positively for CEO receiving cash signing bonus around CEO succession. Average five-day cumulative abnormal return is 2.18% higher than CEOs who do not receive signing bonus.

Our empirical evidence suggests that CEOs receiving cash signing bonus exhibit higher managerial ability. Previous studies suggest that managerial fixed effect contributes to firm performance (Bertrand, Schoar, 2003) and capital market incorporate executive's human capital into the valuation of firm (Chang, Dasgupta, Hilary, 2010). We further test whether those ex ante managerial ability could contribute to ex post firm performance.

We use return on asset (**ROA**)<sup>6</sup> and buy and hold abnormal Return (**BHAR**) to proxy firms' long-term operational and stock performance. To mitigate potential endogeneity issue, i.e. firms with good performance are more easily to attract CEOs with prominent managerial characteristics, we adopt a *Dif-in-Dif*<sup>7</sup> approach to evaluate the change of firm performances after CEO succession. On a three-fiscal-year window, firms' profitability is positive associated with CEO succession with cash signing bonus. Similarly, we also observe a increase of *Buy and Hold Abnormal Return* after CEO succession.

Putting all evidence together, cash signing bonus is a rational and rea-

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<sup>6</sup>And we use **ROE** as an alternative measurement.

<sup>7</sup>We match firms based on their pre-succession firm size, leverage, free cash flow, and growth opportunity.

sonable compensation component to attract managers with higher ability. Firms issuing cash signing bonus would have higher long-term firm performance and stock market return. However, we do not find similar pattern in terms of equity signing bonus and combined package.

Our findings directly link to the limited studies of signing bonus. Xu and Yang (2014) study signing bonus package of top executives and find that risky firms are more likely to grant signing bonus to mitigate termination risk. We find firm level evidence that are consistent with Xu and Yang's finding. Firms with higher innate risk are more likely to issue cash signing bonus rather than equity signing bonus. Nevertheless, their paper mainly focuses on firm level characteristics. This paper, to our best knowledge, is the first paper to study the motivation of issuing cash signing bonus from the perspective of managerial characteristics. Our finding help to explain some unsolved questions such as (1) why a specific risky firm do not issue signing bonus to all of its succeed top managers? Or (2) why a specific manager could continuously receive signing bonus even if her new employer is not risky?

We also directly link signing bonus with corporate governance by studying the extent of over-compensation after CEO succession. For a long time, signing bonus, especially cash signing bonus, is subject to media criticism under agency problem argument. Our empirical results suggest that firms suffering free cash flow problem do not tend to issue more cash signing bonus. Moreover, issuing cash signing bonus is not due to poor corporate governance. CEOs with cash signing bonus are less over-paid subsequently.

Our study compliments to researches of managerial perks and perquisites. Previous researches focus on the managerial consumption such as corporate jet (Rajan et al. 2006), club membership (Yermack, 2006a), severance package (Yermack, 2006b), etc.. One of the challenges confronted by those studies



are the quality of data. First, firms may hide or defer the disclosure of the use of managerial perks and perquisites (Yermack, 2006a). Second, it is hard to expand the coverage of firms in the sample since big firms generally issue more perks to managers while small firms may not need to report the use of managerial compensation whose amount does not exceed the threshold<sup>8</sup> of report required by SEC. Third, perks and perquisites may be consumed at a firm level without linking to specific position. Signing bonus provides a new research perspective. Firstly, the information of signing bonus is documented in executive's employment arrangements which is reported in SEC files 8-K after 2004. Secondly, not only big firms but also small firm could issue cash signing bonus<sup>9</sup>. Lastly, such bonus is directly linked to specified managerial position.

The remaining parts of this paper are organized as follows. Section 2 reviews theoretical determinants of motivations of issuing signing bonus. Section 3 illustrates the data. Section 4 studies firms' motivation of awarding signing bonus. Section 5 tests alternative explanation regarding corporate governance. Section 6 tests stock market reaction around CEO succession. Section 7 compares long-term performances of firms who award signing bonus to their peers. Section 7 summarizes the paper and draws conclusions.

## 2 Theories of Cash Signing Bonus

Theoretical studies hold controversial attitudes towards functions of cash signing bonus. In a classical agency model, an one-time cash signing bonus

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<sup>8</sup>SEC requires firm give footnote of specific perquisite if its aggregate value is greater than \$25,000 or 10% of the total perquisites.

<sup>9</sup>The average size of firms' cash signign bonus is \$630,000, which is 147% of CEOs' first year base salary.

dose not enhance productivity, resulting in *Free Cash Flow Problem*. However, through *Ex Post Settlement* mechanism, labor market could adjust managerial compensation efficiently. Thus, cash signing bonus serves as a neutral compensation component. Moreover, cash signing bonus could be an negotiation outcome under labor market equilibrium.

## 2.1 Free Cash Flow Problem

A diligent manager should maximize firm value. However, managers would tilt on non-pecuniary benefits and maximize their own utility (Jensen and Meckling, 1976; Liang et al., 1991) at the cost of shareholders' wealth when they hold proportional equity. In addition, managers in the firm with high free cash flow would invest in sub-optimal project or increase managerial consumption thereby increasing their non-pecuniary benefits (Jensen, 1986).

To reduce agency problem, firms could use performance-based compensation to align managerial performance with shareholders' interests. However, cash signing bonus are not linked with firm performance and do not directly enhance productivity compared with other managerial perquisites such as corporate jet.<sup>10</sup> Thus, issuing cash signing bonus might steam from *Free Cash Flow Problem*.

*Free Cash Flow Problem* hypothesis predicts that (1) firms with higher free cash flow, lower growth opportunity (Jensen 1986), and poor corporate governance (Bertrand and Mullainathan, 2001) have higher likelihood to grant cash signing bonus to top managers, (2) stock market reacts negatively to CEOs who receive cash signing bonus, and (3) cash signing bonus cannot incentive managers to enhance firm performance.

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<sup>10</sup>Rajan et al. (2006) find that the use of corporate jet is negatively associate with the number of flight number of local airport near headquarter.

## 2.2 Ex Post Settlement

An alternative explanation of cash signing bonus stem from Fama's (1980) theory that firms pay executive compensation rationally throughout her whole tenure period. CEOs are less likely to be over-compensated. Labor market evaluates CEOs' performance dynamically based on the new information through the *Ex Post Settlement* mechanism. Board could continuously adjust CEO's compensation condition on new information observed from recent firm performance.

With a efficient monitoring scheme implemented by the board, CEOs could only smooth compensation within their expected human capital since the board can quickly offset their excessive compensations by reducing subsequent compensations. *Ex Post Settlement* predicts that (1) CEOs awarded by signing bonus, no matter in equity type or cash type, will less likely to be overpaid in the following years and (2) stock market should not have any reaction. Nevertheless, *Ex Post Settlement* has no prediction on managers' subsequent performance who receive signing bonus.

## 2.3 Mitigating Termination Risk

From perspective of employee, one specific function of signing bonus is to mitigate termination risk. CEOs also evaluate potential employers before accepting the new position. When dealing with a risky company with asymmetric information, CEOs might hesitate to accept the job due to the high termination risk (Xu and Yang, 2014; Almazan and Suarez, 2003) or to shirk with subsequent underinvestment (Berkovitch, Israel, and Spiegel, 2000). Signing bonus could be utilized to offset the potential loss of CEOs' human capital thereby providing an insurance and encouraging candidates

to take risk. One potential concern of such hypothesis is that to what extent that signing bonus could offset the potential loss, especially considering the relative small size of upfront payment compare with managers' total compensation.

Xu and Yang find that (1) firms with lower asset, higher leverage ratio, higher R&D expense, and higher forecast dispersion are more likely to award signing bonus to their CEO, and (2) Qualified CEOs<sup>11</sup> but not receive signing bonus do not enhance performance.

Termination risk mitigation answers the question that what kind of firm would issue signing bonus. However, it could not explain several alternative question such as (1) why risky firms issue signing bonus to one manager but refuse to reward signing bonus to another?<sup>12</sup> Or (2) why same manager continuously receive signing bonus even if her new employers is not risky?<sup>13</sup>

## 2.4 Attracting Manager with Prominent Managerial Ability

Compensation structure is the negotiation of the both side. Cash signing bonus is an upfront cash inflow for managers. Signing bonus serves as an efficient tool to attract managers. First, signing bonus, especially cash signing bonus, could quickly reimburse the potential job transition cost. Second, signing bonus signal a welcome and trust from the board. Third, signing bonus enhance candidates' fame in the labor market, contributing to market

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<sup>11</sup>CEO that should receive signign bonus based on likelihood model.

<sup>12</sup>For Example, Federal Signal did not issue signing bonus to its previous CEO Robert D. Welding but it issued \$763,000 to the succeed CEO William H. Osborne.

<sup>13</sup>One typical example is that Dr.Carol A. Bartz recived \$563,000 cash signing bonus from Autodesk, Inc which is a moderate-size company on 1992 and she also received \$2,650,000 cash signing bonus from Yahoo!, Inc..

expectation of candidates' human capital.

However, firms could not issue cash signing bonus to every managers as issuing cash signing bonus incurs immediate upfront cost for firm. To balance the cost and the return, firms are more willing to only issue signing bonus to those managers with higher managerial agility. One explanation is that human capital contribute to firm performance (Custodío 2006; Bertrand and Schoar, 2003). Attracting talent candidate enhances managerial productivity and improves firm performance in return. Therefore, we raise another alternative explanation of signing bonus that it is to attract talent managers from employers' view.

Attracting talent hypothesis provides explanation of why same firm not pay signing bonus to all succeed managers and it predicts that (1) CEOs with higher managerial ability are more likely to receive signing bonus and the magnitude is positively related to the extent of managerial ability, (2) market would react positively around CEO succession as acquiring valuable human resource could add firm value, and (3) those ex ante managerial ability could contribute to ex post firm performance.

Table 1 summaries theoretical predictions in perspectives of ex ante determinants, subsequent compensation, market reaction, and ex post long-term firm performance.

## 3 Data and Sample Description

### 3.1 Data

We identify CEO succession of S&P 1500 firms from 1992 to 2015 through *Execucomp*<sup>14</sup>. We then collect information of CEOs' signing bonus package

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<sup>14</sup>We exclude financial firms (SIC 6000 to SIC 6999) from our sample.

through executive employment arrangement reported in SEC files *8-K* and *DEF 14A*.

CEO succession events without the grant of signing bonus package are included in control group. Firms issuing cash signing bonus, equity signing bonus, and combined cash and equity signing bonus package are involved in three treatment groups. To further control endogeneity issue, we match firms in treatment group with control group via propensity score matching. We match firms by their pre-succession fiscal year total assets, leverage ratio, free cash flow, and growth opportunities measured by Tobin's  $Q$ .

Our sample consists 1474 events of CEO turnover. 318 events issue signing bonus package to the succeed CEO. Figure 1 illustrates the time trend of CEO succession ratio with different types of signing bonus. Cash signing bonus is the most popular type. Table 5 reports industrial distribution of CEO succession with signing bonus. There are distinct preference of signing bonus types across industry. For instance, auto repair, services, & parking industry prefers to issue cash signing bonus<sup>15</sup> while nonmetallic minerals industry prefers to use equity signing bonus<sup>16</sup>.

### 3.2 Measurement of Signign Bonus

Signing bonus is defined as an one-time compensation granted on commencement date. Companies could pay cash, equity, or a mixed package to the candidate. The function of the equity portion is similar to that of the performance-based compensation, which aims to align managers' interests with firm performance. In this paper we mainly focus on cash part of signing bonus with three reasons. First, a one-time cash compensation does not ex-

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<sup>15</sup>50% CEO successions are granted of cash signing bonus.

<sup>16</sup>50% CEO successions are granted of equity signing bonus.

hibits a directly incentive effect, subjecting to the *Free Cash Flow* criticism. Second, both cash and equity signing bonus are awarded without any verification for the ex post contribution of the manager. Hence, it enables us to test *Ex Post Settlement* hypothesis that firms balance the ex ante and ex post compensation of executives. Third, both cash signing bonus and equity signing bonus are directly linked to CEO position which enables us to test the signaling effect of managerial ability.

We use keywords set namely "*Sign\* Bonus*", "*Make-whole Bonus*" and other relative nouns with same definition of one-time, upfront compensation to collect the detail information of signing bonus from CEO employment arrangement in SEC file *8-K* and summary compensation table in file *DEF 14A* thereby decomposing signing bonus package into cash and equity parts. We further separate relocation cost and attorney fee from the cash signing bonus package.

### 3.2.1 Measurement of Cash Signing Bonus

We use a dummy variable *Dummy(Cash)* with one indicating that firm only issue cash signing bonus and zero otherwise. For continuous measurement, we construct two measurements namely

$$\text{Broad Cash} = \frac{\text{Total Cash Signing Bonus}}{\text{First Year Base Salary}}$$

$$\text{Narrowed Cash} = \frac{\text{Total Cash Signing Bonus} - \text{Relocation \& Attorney Cost}}{\text{First Year Base Salary}}$$

In our treatment group issuing cash signing bonus (Table 2), the average size of cash signing bonus package is around \$600,000. Relocation and Attorney fee accounts for 48% of total signing bonus package. And the total cash signing bonus package is 1.47 times than CEOs' first year base salary.

### 3.2.2 Measurement of Equity Signing Bonus

For equity signing bonus, we focus on the present value of equities on commencement date. We use a binary variable  $Dummy(Equity)$  to proxy the grant of equity signing bonus and we use two continuous measurements namely

$$\text{Broad Equity} = \frac{MV_{Ind\ Option}^{Signing}}{\text{First Year Base Salary}}$$

$$\text{Narrowed Equity} = \frac{MV_{Exd\ Option}^{Signing}}{\text{First Year Base Salary}}$$

where  $MV_{Ind\ Option}^{Signing}$  is market value of shares in the option signing bonus and shares of equity signing bonus on the beginning date.  $MV_{Exd\ Option}^{Signing}$  is market value of shares of equity signing bonus on the beginning date.

In our treatment group issuing equity signing bonus (Table 2), average market value of shares in equity signing bonus is \$2,690,090 while the value of shares in option package is \$4,006,430.

### 3.2.3 Measurement of Cash & Equity Signing Bonus

69 events issue both cash and equity signing bonus to their CEOs. A dummy variable  $Dummy(Both)$  with one indicates firm issues cash and equity signing bonus to its CEO and zero otherwise. In those combined signing bonus package, the value of equity signing bonus dominates. Cash parts of combined package is mainly for reimbursement purpose. Table 2 shows that cash signing bonus represents 25% of the total signing bonus, and 40% of those cash bonus are used to reimburse relocation and attorney cost.



### 3.3 Measurement of CEO Characteristics

Murphy and Zbojnk's (2004) model predict that CEOs' pay is increase as CEOs' general skills' that is transferable across firms and industries. CEO with general managerial skill contribute to managerial productive. For one hand, CEO with experience of multiple managerial position could enhance cooperative efficiency among CEO and other named executive. For another hand, CEO with multiple industrial background could benefit CEO when dealing with tough operational task such as cross-industrial M&A (Custódio et al. 2013).

To proxy for CEOs' managerial ability, we use generalist index to measure CEOs' general managerial ability. We hand collect CEOs' career information to construct the generalist index following the methodology of Custódio et al. (2013). In detail, our generalist index is the first component factor of the following variables namely *Number of Firms*, *Number of Industries* classified by 2-digit SIC code, *CEO Dummy*, *Number of Positions* in terms of financing, operation, and marketing. The linear combination of the factor if as follows<sup>17</sup>.

$$\begin{aligned} \text{Generalist Index} = & 0.37 \times \text{Number of Firms} + 0.35 \times \text{Number of Industries} \\ & + 0.22 \times \text{CEO Dummy} + 0.30 \times \text{Number of Positions} \end{aligned}$$

Another measurement of managerial ability is CEOs' experience in employers' industry <sup>18</sup>. With a deeper industrial exposure, CEOs candidate could have better understanding of employers' overall operation as well as their industrial competitors. Since staying in the same employers also increase industry exposure along time, we only include the time that candi-

<sup>17</sup>We do not include the number of division into the linear combination due to data limitation.

<sup>18</sup>Industry is classified by 2-digit SIC.

dates served as executives in firms other than the current employer within the same industry.

For other CEO characteristics, we control for CEOs' age on commencement date. For CEOs' educational level, we use dummy variable *PHD* which equals to one if CEO hold one of the degree in PhD and zero otherwise. Dummy variable *FEMALE* is equal to one if CEO is female and zero otherwise. Table 4 shows the correlation matrix among signing bonus and theoretical predictors. *Dummy(cash)* is positively correlated with generalist index and industry exposure. The correlation coefficient is 0.22 for generalist index and 0.19 for industry exposure which are significant at 1% level. The coefficient between industry exposure and *Dummy(Both)* drops to 0.14, but the coefficient of generalist index decrease shapely (0.06). Nevertheless, CEOs receiving equity signing bonus do not exhibit significant correlation with generalist index and industry exposure.

### 3.4 Control Variable

The information of firms' financial characteristics, stock returns, institutional holdings are collected from standard sources namely *COMPUSTAT*, *CRSP*, and *Thomson Reuters*. We required firms' fiscal period to be within the linked period based on *CRSP-Compustat Merged* linked table. All the firms involved in the sample must have financial characteristics of the fiscal year before the CEO turnover, at least 12-month of monthly stock returns of the previous 60 months before the event date, and at least 30-day of daily stock returns of the previous 252 days before the event date. For CEOs' compensation information and personal characteristics, we merge our sample with *Execucomp*. Detailed variable definition are attached in Appendix.

### 3.4.1 Measurement of Free Cash Flow Problem

Free cash flow measures firms' available cash after subtracting all expense such as interest cost, tax payment, and net capital expenditure. We proxy firms free cash flow following the methodology of Rajan and Wulf (2006)<sup>19</sup>. Tobin's Q is used to proxy firms' growth opportunities.

We proxy the level of corporate governance by using firms' top five institutional holding ownership. Institutional investors provide external monitoring. An increase of institutional holding increases the level of outside corporate governance. We also measure managerial entrenchment level as a higher managerial level reduce shareholders' voting power which also reduce the effectiveness of corporate governance. We use entrenchment index (E-index) to proxy managerial entrenchment followed the method of Bebchuk et al.(2009). It is the sum of six provisions namely staggered boards, limits to shareholder bylaw amendments, poison pills, golden parachutes, and supermajority requirements for mergers and charter amendments. The overall managerial entrenchment increases as E-index increases.

*Free Cash Flow Problem* predicts that firms with higher free cash flow, lower growth opportunity, and poor corporate governance tend to issue more cash signing bonus. Table 3 compares firms' free cash flow, Tobin's Q, top five institutional holding, and E-index among different groups. Our univariate test does not fully support the *Free Cash Flow Problem* hypothesis. For groups issuing cash signing bonus and combined cash and equity signing bonus, they have significant lower free cash flow, lower Tobin's Q, and higher institutional ownership comparing with firms do not issuing signing bonus. For groups issue equity signing bonus, we do not observe significant difference

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<sup>19</sup> $[lagged\ Operating\ income\ before\ deperation - interest - (taxes - changes\ in\ deferred\ tax) - capital\ expenditure] / beginning - period\ total\ asset.$

comparing with the control group.

### 3.4.2 Measurement of Excessive Compensation

If issuing cash signing bonus is because of poor governance, then CEO could continuously extract private benefit. To test this hypothesis, we study the follow-up managerial excessive compensation. Excessive compensation is defined as the residual compensation that could not be explained by firm performance. A higher subsequent excessive compensation suggest that CEO are continuously over-paid.

The magnitude of over-compensation cannot be directly observed in the labor market. Following the approach of Yermack (2006b), we use the excessive compensation, or the *Abnormal Compensation*, to proxy such magnitude. Excessive compensation is the residual from regression model

$$\sum_{t+1}^{t+2} C_{i,j,k,t} = \alpha + \beta_1 \sum_{t+1}^{t+2} AR_{i,j,k,t} + \beta_2 \log AT_{i,j,k,t-1} + \beta_3 \log SALES_{i,j,k,t-1} + \gamma_k + \sigma_t + \varepsilon_{i,j}$$

where  $t$  is the year of CEO succession,  $k$  is industry,  $\sum_{t+1}^{t+2} C_{i,j,k,t}$  is the total compensation<sup>20</sup> of the following two years after  $i$ th CEO succession of the  $j$ th firm,  $\sum_{t+1}^{t+2} AR_{i,j,k,t}$  is subsequent two-year cumulative market-adjusted continuous stock return compounded monthly,  $\log AT_{i,j,k,t-1}$  and  $\log SALES_{i,j,k,t-1}$  is the logarithm asset and sales,  $\gamma_k$  is industry fixed effect, and  $\sigma_t$  is year fixed effect.

Table 3 suggests that CEO with cash signing bonus are less over-paid by \$9800 compared with control group. Nevertheless, CEO receiving equity signing bonus are more likely to be over-compensated.

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<sup>20</sup>Execucomp term *TDC2*.

### 3.4.3 Measurement of Innate Risk

Xu and Yang (2014) find that firms' innate risks are positively related to the probability of issuing signing bonus. We follow their research design to proxy firms' innate risks by using firm's R&D (R&D expense/Total Asset), leverage (Long-term Debt/Total Asset), total asset, analyst forecast dispersion as measured by standard deviation of the fiscal-year end EPS from I/B/E/S and a dummy variable indicating missing analyst coverage. In addition, we further proxy firms' innate risks by using idiosyncratic risk volatility and measure firms systematic risk.<sup>21</sup>

Based on their finding, firms with higher innate risk as illustrated by lower asset, but higher leverage, R&D, and forecast dispersion tend to issue signing bonus to mitigate candidates' concern of termination risk. We find similar results for group only issuing cash signing bonus (Table 3). Firms issuing cash signing bonus tend to have relative small size, higher R&D expense, higher forecast dispersion, and higher idiosyncratic risk volatility and systematic risk. However, for firms issuing equity signing bonus or a combined package, those firms tend to have lower innate risk.

## 4 Determinants of Signing Bonus

Our univariate analysis suggest that CEOs receiving cash signing bonus exhibit higher general managerial ability and industry exposure. To further test our hypothesis, we study whether those ex ante managerial ability

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<sup>21</sup>We regress firms' past three-year monthly returns based on Carhart four-factor model. Idiosyncratic risk is the 12-month moving standard deviation of the residual before the month of CEO succession while systematic risk is the coefficient of excessive market return derived from the regression model.

measurement servers as essential determinants for firms issuing cash signing bonus.

We use a probit model to estimate the determinants of the probability of issuing signing bonus. Table 6 reports the estimations of likelihood analysis. Panel A to Panel C report regression estimation using *Dummy(Cash)*, *Dummy(Equity)* and *Dummy(Both)* as dependent variable.

#### 4.1 Signing Bonus and Ex Ante Managerial Ability

Model 1 tests the relationship between ex ante managerial ability and the probability of issuing signing bonus. We find that, controlling for CEO characteristics, generalist index and industry exposure is positively affect the probability of issuing cash signing bonus. The average marginal effects of generalist index and industry exposure are 5.36% and 1.03% respectively.

The significance of the relation decrease as the decrease of cash fraction in the signing bonus package as shows in Panel B and Panel C. CEO receiving combined signing bonus package only exhibit higher industry exposure while CEO receiving equity signing bonus do not exhibit significant managerial advantage. Our result still hold in Model 5 after controlling for all alternative predictors.

#### 4.2 Signing Bonus and Free Cash Flow

Our result also suggests that *Free Cash Flow Problem* does not drive firms to issue cash signing bounce. Firms' free cash flow level is significantly and negatively associate with the probability of issuing cash signing bonus or a combined package. In addition, firms issuing cash signing bonus are under good institutional monitoring compared with firms grating combined package.

Firms granting equity signing bonus are more likely to suffer free cash flow problem. Despite the low significance, the probability of issuing equity signing bonus is positively associate with firms' free cash flow and negatively associate with firms' growth opportunity, top five institutional ownership, and entrenchment index.

### **4.3 Signing Bonus and Innate Risk**

We find similar pattern as Xu and Yang (2014) in the subsample issuing cash signing bonus. Model 3 in Panel A indicates that firms issuing cash signing bonus has lower asset, higher R&D expense, forecast dispersion, and idiosyncratic risk volatility. But we do not find similar pattern for firms' issuing equity signing bonus or combined package.

After controlling for CEO characteristics and managerial ability in model 4, the effect of forecast dispersion and idiosyncratic risk volatility still hold, but significance of size effect and R&D expense drop sharply.

### **4.4 Endogeneity Issue**

One may argue that the selection of CEO subjects to endogeneity problem as big firms or firms with good performance are more easy to employ CEO with outstanding performance. And those firms are more likely to issue cash signing bonus as they have lower cash constraint.

Our result shows that it is the firm with lower asset and higher innate risk are more likely to issue cash signing bonus. To further control the endogeneity issue, we control for firm fixed effect in model 5. The predictability of our two managerial measurements still hold.

## 4.5 Alternative Measurement of Signing Bonus

Table 7 replaces the dummy variable by continuous measurements of signing bonus as robustness test. Panel A reports Tobit regression estimations using *Broad Cash* and *Narrowed Cash* as dependent variable. Similar as the result of Probit model, the amount of cash signing bonus increase significantly as generalist index and industry exposure increase. For instance, an one-standard-deviation increase of generalist index increase *Broad Cash* by 2.2 times and 2.34 times for *Narrowed Cash*. And an one percent increase of industry exposure will contribute to 0.50% and 0.54% increase of *Broad Cash* and *Narrowed Cash* respectively. The result still hold when we control for firms' free cash flow level, corporate governance, and innate risk. We also control for firm fixed effect in model 5 and model 10 to address endogeneous problem, and our result is still robust.

In terms of the magnitude to equity signing bonus, we find that CEOs' industry experience is positive related to equity signing bonus amount among all models. However, the amount of narrowed equity signing bonus decreases as generalist index increase. In addition, the relationship between generalist index and broad equity signing is unclear.

Our Tobit regression still does not support the *Free Cash Flow Problem* hypothesis, firms with lower free cash flow tend to issue higher cash or equity signing bonus.

Moreover, risky firms with higher forecast dispersion and idiosyncratic risk volatility will increase the size of cash signing bonus. In terms of equity signing bonus, the predictive power of innate risk decrease.

To summarize, our baseline finding suggest that (1) the motivation of granting cash signing bonus is highly depended on CEOs' managerial ability, (2) issuing cash signing bonus are not subject to free cash flow problem, and



(3) firms with higher innate risk issue cash signing bonus to their CEO.

## 5 Signing Bonus and Subsequent Excessive Compensation

Another alternative story could be that CEO extract cash signing bonus due to poor corporate governance. If this is the case, then poor compensation monitoring enables CEOs to continuously extract excessive compensation, weakening the *Ex Post Settlement* hypothesis.

To test this alternative explanation, we regress CEOs' subsequent two-fiscal-year's excessive compensation with cash and equity signing bonus. Excessive compensation is defined as the residual of the fixed regression model in section 3.4.2.

Table 3 shows the univariate test between subsamples issuing different signing bonus and control group without granting signing bonus. CEOs receiving cash signing bonus are less overpaid by \$9,800. Table 8 reports the OLS estimations of our regression model. We find that CEOs receiving higher cash signing bonus tend to be less overpaid. For example, an one-standard-deviation increase of broad cash signing bonus would decrease subsequent excessive compensation by \$18,308. The economics interpretation is also meaningful by using narrowed cash signing bonus. An one-standard-deviation increase of narrowed cash signing bonus will decrease subsequent excessive compensation by \$14,766. We do not observe persistent pattern for equity signing bonus. The result is negatively significant only when including option signing bonus (Broad Equity Signing Bonus).

Our empirical evidence does not fit the predication of poor corporate governance hypothesis. Nevertheless, our result support Fama's (1980) *Ex Post*

*Settlement* theory. Although companies pay upfront cash signing bonus to their CEOs, but companies could still monitor and adjust CEO compensation to avoid over-compensation based on ex post managerial performance.

## 6 Market Reaction around CEO Succession

Our baseline finding suggests that CEOs receiving cash signing bonus exhibit higher general managerial ability and industry exposure. Higher ex ante managerial ability could contribute to firm value in the long run. In this case, market should react positively to those succession events. Therefore, we test stock market reaction around CEO succession. The event date is the date that firms announce CEO succession <sup>22</sup>.

Figure 2 plots three day abnormal return around CEO succession. Stock market reacts positively for CEO receiving cash signing bonus. However, stock market reacts negatively for CEO receiving equity signing bonus, but the amount of such negative reaction is decreased as firm use combined cash and equity signing bonus.

Table 9 reports cumulative abnormal return (*CAR*) <sup>23</sup> of different subsamples with a time window of three days. Compared with subsample does not issue signing bonus, the two-day abnormal return is 2.19% higher for CEO receiving cash signing bonus and 2.08% higher for CEO receiving combined package. Nevertheless, the advantage of  $CAR(-2,2)$  is not significant for CEO receiving equity signing bonus.

To further test cross-sectional market reaction. We regress *CAR* with

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<sup>22</sup>We collect firms' announcement from the SEC file *8-K*, the announcement date is the date corporate press gose to public.

<sup>23</sup>Cumulative Abnormal Return (*CAR*) is constructed by Carhart four-factor model. The estimation window is (-252, -10). The event window is five days (-3,3).

signing bonus measurement. Table 10 reports our OLS estimation result. Similarly as our statistics result, all measurements of CAR is positively associate with *Dummy(Cash)*. For instance, for firms issuing cash signing bonus, their five-day CAR 2.18% higher compared with other subsamples.

In a nutshell, we find that stock market reacts positively around CEO succession for CEOs receiving cash signing bonus. Firms's cumulative Abnormal return is higher than their peers. This dose not fit the prediction *Free Cash Flow Problem* but supports the *Attracting Talent Manager* hypothesis.

## 7 Long Term Firm Performance

In this section, we test whether those ex ante managerial ability contribute to long term firm performance. We use a *Dif-in-Dif* approach to address the change of firm performance after CEO succession. To release endogeneity issue, we create a control group which does not grant signing bonus and match treatment group via asset, leverage, free cash flow, and growth opportunity.

We construct a dummy variable *After* indicating after-CEO-succession period. Our variables of interest are the interaction term *Signing*  $\times$  *After* where *Signing* is the binary or continuous measurements of cash, equity, or combined signing bonus.

### 7.1 Long-Term Firm Performance

Firms' long-term operation performance are measured by three-fiscal-year industrial-adjusted average return on asset (*ROA*) and return on equity (*ROE*) starting from first fiscal year of CEO commencement.

As figure 3 and 4 indicates, after CEO succession, firms issuing cash signing bonus enjoy a significant increase of ROA compared with matched sample.

While ROA firms granting equity or combined signing bonus only slightly increase during the second fiscal year. Table 11 reports the OLS estimation. We control firm characteristics, CEO characteristics, year and industry fixed effect. Standard error is adjusted for heteroscedasticity-consistence. Panel A reports the result of the subsample issuing cash signing bonus, firms' profitability is enhanced after CEO succession. The increase of ROA for the treatment group is 2.32% higher compared with that of matched sample.

Nevertheless, we do not observe the same trends for subsample issuing equity or combined signing bonus. This is consistent with our previous finding that cash signing bonus is issued to CEO with higher managerial ability.

## 7.2 Long-Term Stock Return

Figure 5 plots the change of BHAR after CEO succession. BHAR of firms issuing cash signing bonus increases significantly after CEO turnover. Nevertheless, firms in other subsample suffered a further deterioration of their BHAR after the event.

Table 12 reports the change of firms' long term stock return measured by buy and hold abnormal return (BHAR) since the first fiscal-year after CEO succession <sup>24</sup>. Panel A reports the estimation for treatment group granting cash signing bonus. In a long run, firms issuing cash signing bonus enjoy a higher increase of their stock return compared with their peers. The coefficients of  $Dummy(Cash) \times After$  are 1.58, 19.02, and 23.19 for 12-Month, 24-Month, and 36-Month BHAR. The results are significant after the first fiscal-year. Although first-year *BHAR* are positively related to the continu-

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<sup>24</sup>Buy and hold abnormal return compounded monthly is constructed by Carhart Four-Factor Model. The estimation period is 60 month before CEO succession. We require the sample to have at least 12-month observations.

ous measurement, but the significance is below 10%. Similar as our previous finding, firms issuing equity or combined signing bonus do not exhibit similar pattern in the long run.

## 8 Conclusion

Using the hand-collected data of CEOs' cash signing bonus, we conduct a series of empirical tests to study firms' motivation to issue signing bonus to CEO candidates. And link such motivation with succeeded CEOs' managerial ability, from both ex ante and ex post perspectives.

We find that firms motivation of issuing cash signing bonus is affected by the extent of CEOs' managerial ability. And there is a positive relationship between the issuance of cash signing bonus and CEOs' general managerial skills as well as industry exposure.

Moreover, such issuance is not due to poor corporate governance or free cash flow problem. Firms with lower free cash flow and better corporate governance are more likely to issue cash signing bonus. In addition, CEOs receiving cash signing bonus are not over-compensated subsequently, supporting the *Ex Post Settlement* hypothesis.

We also find that stock market reacts positively for those CEO who receive cash signing bonus. Firms' cumulative abnormal return is higher compared with the other subsamples. Moreover, those ex ante managerial ability could contribute to ex post firm performance in the long run. As firms issuing cash signing bonus exhibit a higher increase of their profitability and stock return.

To conclude, issuing cash signing bonus is not a waste of money. Instead, it may serve as an efficient tool for firms to attract CEOs with remarkable managerial ability which could contribute to firm performance.

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## Appendix Variable Definiton

VARIABLE	DEFINITATION
MEASURMENTS OF SIGNING BONUS	
BROAD CASH	Narrowed Cash + Relocation & Attorney Cost
BROAD EQUITY	Commencement date market value of shares in equity signing bonus and shares in option signing bonus
DUMMY(BOTH)	Dummy variable with one indicates firm issue cash & equity signing bonus to CEO and zero otherwise
DUMMY(CASH)	Dummy variable with one indicates firm only issue cash signing bonus to CEO and zero otherwise
DUMMY(EQUITY)	Dummy variable with one indicates firm only issue equity signing bonus to CEO and zero otherwise
NARROWED CASH	Cash signing bonus excluding reimbursed relocation & attorney cost
NARROWED EQUITY	Commencement date market value of shares in equity signing bonus
RELOCATION & ATTORNEY COST	Reimbursement of relocation & attorney cost
MEASURMENTS OF MANAGERIAL ABILITY & CEO CHARACTERISTICS	
GENERIST INDEX	$= 0.37 \times \text{Number of Firms} + 0.35 \times \text{Number of Industries} + 0.22 \times \text{CEO Dummy} + 0.30 \times \text{Number of Positions}$
INDUSTRY EXPOSURE	Previous working experience within employer's industry
AGE	Age of CEO candidate
Excessive Compensation	Residual from the fixed regression model: $\sum_{t+1}^{t+2} C_{i,j,k,t} = \alpha + \beta_1 \sum_{t+1}^{t+2} AR_{i,j,k,t} + \beta_2 \log AT_{i,j,k,t-1} + \gamma_k + \sigma_t + \varepsilon_{i,j}$
FEMALE	Dummy variable with one indicates female CEO zero otherwise
PHD	Dummy variable with one indicates CEO has PhD degree and zero otherwise
SALARY	First year base salary

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MEASURMENTS OF FREE CASH FLOW

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FCF	Free Cash Flow:
EINDEX	Sum of provisions namely staggered boards, limits to shareholder bylaw amendments, supermajority requirements, and poison pills, golden parachutes
TOBIN'S Q	$(\text{Market value of share} + \text{Total Asset} - \text{Common Asset}) / \text{Total Asset}$
TOP5INSTOWN	Top five institutional ownership

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MEASURMENTS OF INNATE RISK

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FORECAST_DISP	Standard deviation of one year EPS forecasting / Mean of one year EPS forecasting
IVOL	Standard deviation of idiosyncratic risk
LEV	long term total liability / Total Asset
LOG(AT)	Logarithm Total Asset
R&D	R&D Expense / Total Asset
RETURN	Fiscal year end stock return
SYS_RISK	Systematic risk

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Table 1: Theoretical Prediction on Cash Signing Bonus

This table reports theoretical predictions from the perspective of ex ante determinant, market reaction, subsequent compensation, and ex post firm performance according to different theories on cash signing bonus on section 2. Signs in parentheses in column 1 indicate positive or negative relationship between the ex ante determinants and the motivation of issuing cash signing bonus.

Theory	Ex Ante Determinant & Relationship	Market Reaction Around CEO Succession	Excessive Compensation	Ex Post Firm Performance
	Free Cash Flow (+)			
Free Cash Flow Problem	Growth Opportunity (-) Corporate Governance (-)	Negative	-	Poor firm performance
Ex Post Settlement	- Asset (-)	Neutral	Less over-compensated	-
Termination Risk Mitigation	Leverage (-) R&D (+)	-	-	Qualified CEOs but not receive signing bonus do not enhance performance
Attracting Talent Manager	Forecast Dispersion (-) Managerial Ability (+)	Positive	-	Enhance firm performance

Table 2: Statistics of Signing Bonus

This table reports summary statistics of CEOs' signing bonus package, *Award Cash*, *Award Equity*, *Award Cash & Equity* represent subsamples issuing cash only, equity only, and combined package as signing bonus. All continuous variables are winsorized at 1% and 99% level.

VARIABLE	AWARD CASH			AWARD EQUITY			AWRD CASH & EQUITY		
	MEAN	MEDIAN	STD	MEAN	MEDIAN	STD	MEAN	MEDIAN	STD
NARROWED CASH (\$000)	499.59	136.00	1,090.41	0.00	0.00	0.00	1,160.40	500.00	1,595.46
RELOCATION & ATTORNEY FEE (\$000)	130.02	48.00	211.13	0.00	0.00	0.00	237.94	65.62	654.27
MARKET VALUE OF EQUITY (\$000)	0.00	0.00	0.00	2,696.09	1,708.00	3,345.50	2,783.57	1,400.00	3,572.68
MARKET VALUE OF SHARES IN OPTION (\$000)	0.00	0.00	0.00	4,006.43	300.00	6,738.95	4,108.00	0.00	11,949.37
SALARY (\$000)	426.77	377.88	291.63	576.49	605.77	299.94	521.21	484.62	299.04
TOTAL CASH SIGNING BONUS /TOTAL SIGNING BONUS	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.21	0.24
RELOCATION & ATTORNEY COST /TOTAL CASH SIGNING BONUS	0.48	0.33	0.46	0.00	0.00	0.00	0.40	0.15	0.45

Table 3: Descriptive Statistics

This table reports variable mean of different subsamples. Column (4), (6), (8) report two-sample difference between groups issuing different type of signing bonus and group does not issue signing bonus. Satterthwaite's T-value is reported on parenthesis. \*, \*\*, and \*\*\* indicate significance at 1%, 5%, and 10% level. All continuous variables are winsorized at 1% and 99% level.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLE	NOT AWARD	AWARD CASH	AWARD CASH-NOT AWARD	AWARD EQUITY	AWARD EQUITY-NOT AWARD	AWARD BOTH	AWARD BOTH-NOT AWARD
LOG(AT)	7.76	7.34	-0.42*** (-3.83)	8.17	0.41* (1.81)	8.21	0.45** (2.39)
LEV	0.19	0.18	-0.01 (-0.8)	0.22	0.03 (0.93)	0.16	-0.03* (-1.9)
R&D	0.04	0.06	0.01* (1.84)	0.04	-0.01 (-0.66)	0.04	-0.01 (-0.81)
FORECAST DISP	0	0.17	0.18** (2.03)	-0.01	-0.01 (-0.15)	0.05	0.06 (1.01)
IDIOSYNCRATIC RISK	0.08	0.09	0.01*** (3.09)	0.07	-0.02*** (-3.37)	0.08	0 (0.3)
SYSTEMATIC RISK	1.06	1.18	0.12** (2.18)	1.01	-0.04 (-0.5)	1.15	0.09 (1.12)
GENERALIST INDEX	-0.03	-0.37	-0.34*** (-3.58)	-0.06	-0.03 (-0.15)	-0.35	-0.32** (-2.37)
RETURN	0.1	0.04	-0.05 (-1.04)	0.09	-0.01 (-0.2)	-0.06	-0.16*** (-3.53)
FCF	0.06	0.04	-0.02** (-2.46)	0.08	0.02 (1.48)	0.04	-0.01 (-1.31)
TOBIN'S Q	2.1	1.91	-0.19* (-1.65)	1.93	-0.17 (-1.19)	1.6	-0.50*** (-4.66)
TOP5INSTOWN	0.26	0.3	0.03*** (4.31)	0.28	0.01 (1)	0.28	0.02** (2.03)
EINDEX	2.16	2.2	0.04 (0.34)	2.2	0.04 (0.19)	2.34	0.18 (1.14)
EXCESSIVE COMPENSATION (\$000)	-0.15	-9.95	-9.80* (-1.67)	45.21	45.36 (1.68)	7.92	8.07 (0.82)
INDUSTRY EXPOSURE	0.48	1.84	1.36*** (4.47)	1.06	0.58 (1.19)	2.71	2.22*** (3.33)
EXECUTIVE'S AGE	52.74	51.9	-0.85* (-1.74)	53.26	0.52 (0.53)	51.78	-0.96 (-1.52)
PHD	0.03	0.03	0 (0.11)	0	-0.03*** (-5.73)	0.1	0.07** (2.01)
FEMALE	0.03	0.04	0.01 (0.71)	0.12	0.09* (1.77)	0.06	0.03 (1.03)
EXTERNAL	0.13	0.88	0.75*** (29.93)	0.53	0.40*** (5.22)	0.93	0.80*** (24.21)
NOBS	1169	209		43		69	

Table 4: Correlation Coefficient Matrix

This table reports Pearson correlation coefficient matrix. \*, \*\*, and \*\*\* indicate significance at 1%, 5%, and 10% level. All continuous variables are winsorized at 1% and 99% level.

VARIABLE	DUMMY (CASH)	DUMMY (EQUITY)	DUMMY (BOTH)	BROAD CASH	BROAD EQUITY	GENERALIST INDEX	INDUSTRY EXPOSURE	CEO TENURE	FCF	Q	TOP 5 INSTOWN	EINDEX	LOG(AT)	R&D	FORECAST DISP	IVOL	SYS RISK
DUMMY(CASH)	1.00																
DUMMY(EQUITY)	-0.05*	1.00															
DUMMY(BOTH)	-0.06**	-0.03	1.00														
BROAD CASH	0.40***	-0.03	0.37***	1.00													
BROAD EQUITY	-0.06*	0.48***	0.51***	0.24***	1.00												
GENERALIST INDEX	0.22***	0.06*	0.06**	0.17***	0.08***	1.00											
INDUSTRY EXPOSURE	0.19***	0.03	0.14***	0.15***	0.09***	0.35***	1.00										
CEO TENURE	0.22***	0.07**	0.13***	0.24***	0.17***	0.55***	0.36***	1.00									
FCF	-0.06**	0.06**	-0.02	-0.04	0.03	-0.01	-0.04	-0.02	1.00								
Q	-0.01	0.03	0.00	0.03	0.04	-0.02	-0.01	-0.04	0.30***	1.00							
TOP5INSTOWN	0.11***	0.02	0.04	0.05*	0.01	0.09***	-0.01	0.05	0.01	0.09***	1.00						
EINDEX	-0.01	0.03	0.07**	0.04	0.04	0.14***	0.03	0.05	0.00	0.03	0.32***	1.00					
LOG(AT)	-0.06**	0.03	0.03	0.03	0.07**	0.15***	0.08***	0.10***	-0.05	-0.08***	-0.20***	0.07**	1.00				
R&D	0.02	0.03	-0.01	0.03	0.04	-0.05	0.04	0.02	0.11***	0.20***	0.11***	0.03	-0.09***	1.00			
FORECAST_DISP	0.09***	-0.02	0.04	0.04	-0.05	0.01	0.00	-0.01	0.06**	0.00	0.03	0.06**	-0.00	-0.03	1.00		
IVOL	0.08***	-0.06*	0.03	0.09***	-0.00	-0.07**	-0.01	-0.00	-0.14***	0.18***	0.05	-0.13***	-0.35***	0.16***	-0.03	1.00	
SYS_RISK	0.04	0.00	0.04	0.06**	0.02	-0.00	0.05	0.03	-0.09***	0.06**	0.06**	-0.04	-0.09***	0.08***	0.01	0.30***	1.00

Table 5: Industrial Distribution of CEO Succession with Signing Bonus

This table reports industrial Distribution of CEO succession ratio with signign bonus. The ratio is defined as the number of CEO succession with specific type of signing bonus divided by total number of CEO succession within certain industry. Industry is classified as two-digit SIC code.

Two-Digit SIC Code	Total	Award Cash	Award Equity	Award Cash & Equity
10	8	5%	10%	0%
13	57	12%	4%	4%
14	2	0%	50%	0%
15	10	0%	0%	0%
16	11	18%	0%	27%
17	2	0%	0%	0%
20	57	9%	7%	2%
21	6	0%	17%	0%
22	7	0%	0%	0%
23	9	11%	0%	11%
24	4	25%	0%	0%
25	13	8%	8%	8%
26	22	0%	5%	9%
27	12	25%	17%	8%
28	114	11%	4%	4%
29	17	6%	0%	6%
30	13	15%	0%	8%
31	6	17%	17%	0%
32	7	14%	0%	14%
33	35	20%	3%	6%
34	30	17%	3%	0%
35	128	14%	6%	5%
36	124	19%	1%	5%
37	59	12%	3%	5%
38	105	12%	2%	7%
39	18	22%	0%	11%
40	8	0%	0%	0%
41	1	0%	0%	0%
42	12	0%	0%	0%
44	9	0%	0%	0%
45	15	0%	0%	0%
47	4	0%	0%	0%
48	27	11%	0%	0%
49	131	11%	1%	2%
50	33	9%	0%	6%
51	20	20%	0%	0%
52	8	13%	0%	0%
53	16	19%	0%	6%
54	5	20%	0%	0%
55	13	38%	0%	8%
56	29	14%	3%	7%
57	9	11%	0%	0%
58	33	21%	0%	6%
59	19	21%	0%	11%
70	2	0%	0%	50%
72	14	29%	0%	7%
73	149	21%	5%	4%
75	2	50%	0%	0%
78	2	0%	0%	0%
79	4	0%	0%	0%
80	18	0%	0%	6%
82	8	25%	13%	13%
87	22	23%	5%	0%
99	1	0%	0%	0%



Table 6: Determinants of Issuing Signing Bonus

This table reports estimations of Probit model. Panel A to Panel C use *Dummy(Cash)*, *Dummy(Equity)*, *Dummy(Both)* as dependent variable respectively. Model 1 to Model 4 control year and industry fixed effect while Model 5 controls year and firm fixed effect. Chi-Square is report in parenthesis. \*,\*\*, and \*\*\* indicate significance at 1%, 5%, and 10% level. All continuous variables are winsorized at 1% and 99% level.

PANEL A: DEP VAR=DUMMY(CASH)					
VARIABLE	MODEL1	MODEL2	MODEL3	MODEL4	MODEL5
GENERALIST	0.37*** (19.06)			0.41*** (20.94)	1.30*** (14.27)
INDUSTRY EXPOSURE	0.09*** (14.82)			0.10*** (14.68)	0.23** (6.03)
AGE	-0.01 (0.61)			-0.01 (0.44)	-0.08* (2.95)
EDU	-0.19 (0.21)			-0.14 (0.10)	-0.10 (0.00)
FEMALE	-0.27 (0.58)			-0.15 (0.17)	0.29 (0.09)
FCF		-1.85*** (9.01)		-1.14 (1.55)	5.22 (1.04)
TOBIN'S Q		-0.02 (0.37)		-0.06 (0.68)	-0.68 (1.83)
TOP5INSTOWN		0.72* (3.56)		1.21** (4.38)	2.85 (0.65)
EINDEX		-0.02 (0.19)		-0.07 (1.34)	-0.03 (0.01)
LOG(AT)			-0.09*** (7.49)	-0.07 (2.05)	0.21 (0.08)
LEV			0.50 (2.31)	0.46 (0.89)	8.75*** (7.08)
RD			2.30** (4.32)	0.14 (0.01)	-3.06 (0.05)
FORECAST_DISP			2.59*** (11.96)	2.07** (4.07)	0.58 (0.01)
IVOL			2.16* (2.85)	3.42* (3.18)	0.23 (0.00)
SYS_RISK			0.07 (0.83)	0.02 (0.05)	0.45 (0.91)
YEAR F.E.	Y	Y	Y	Y	Y
INDUSTRY F.E.	Y	Y	Y	Y	N
FIRM F.E.	N	N	N	N	Y
NOBS	1145	1490	1469	1129	1129
RSQ	0.10	0.07	0.09	0.13	0.39

Table 6: Determinants of Issuing Signing Bonus

PANEL B: DEP VAR=DUMMY(EQUITY)					
VARIABLE	MODEL1	MODEL2	MODEL3	MODEL4	MODEL5
GENERALIST	0.20 (1.65)			0.15 (0.87)	-1.09 (0.13)
INDUSTRY EXPOSURE	0.02 (0.30)			0.04 (0.72)	0.50 (0.50)
AGE	0.02 (0.87)			0.01 (0.42)	0.10 (0.08)
EDU	-4.15 (0.00)			-2.20 (0.19)	-7.31 (1.03)
FEMALE	0.24 (0.32)			0.22 (0.23)	3.35 (0.09)
FCF		0.50 (0.17)		0.63 (0.12)	12.51 (0.09)
TOBIN'S Q		-0.04 (0.23)		-0.00 (0.00)	-0.75 (0.09)
TOP5INSTOWN		-0.60 (0.68)		0.06 (0.00)	-0.12 (0.00)
EINDEX		-0.07 (1.13)		-0.13 (1.85)	0.34 (0.04)
LOG(AT)			0.02 (0.13)	-0.01 (0.02)	0.96 (0.06)
LEV			0.99* (2.77)	0.81 (0.93)	1.08 (0.00)
RD			1.12 (0.23)	3.82 (1.63)	-16.89 (0.02)
FORECAST_DISP			-2.38 (2.48)	-1.70 (0.66)	-21.61 (0.17)
IVOL			-7.34** (5.48)	-8.01** (3.86)	33.17 (0.21)
SYS_RISK			0.02 (0.02)	0.02 (0.01)	-0.61 (0.03)
YEAR F.E.	Y	Y	Y	Y	Y
INDUSTRY F.E.	Y	Y	Y	Y	N
FIRM F.E.	N	N	N	N	Y
NOBS	1145	1490	1469	1129	1145
RSQ	0.07	0.06	0.06	0.07	0.21

Table 6: Determinants of Issuing Signing Bonus

PANEL C: DEP VAR=DUMMY(BOTH)					
VARIABLE	MODEL1	MODEL2	MODEL3	MODEL4	MODEL5
GENERALIST	0.00 (0.00)			-0.04 (0.06)	-0.67 (0.12)
INDUSTRY EXPOSURE	0.14*** (18.91)			0.17*** (17.84)	0.28 (0.35)
AGE	-0.04** (6.08)			-0.05*** (7.65)	0.03 (0.02)
EDU	1.14*** (9.31)			1.35*** (8.69)	4.57 (0.53)
FEMALE	0.33 (0.66)			0.13 (0.08)	-0.88 (0.01)
FCF		-1.35 (1.75)		-2.85 (2.23)	-8.32 (0.07)
TOBIN'S Q		-0.17* (3.63)		-0.11 (0.76)	0.36 (0.02)
TOP5INSTOWN		-1.26** (4.05)		-1.86 (2.49)	0.81 (0.00)
EINDEX		-0.00 (0.00)		-0.04 (0.18)	0.33 (0.06)
LOG(AT)			0.16*** (9.73)	0.08 (0.84)	0.26 (0.00)
LEV			-0.97* (2.81)	-1.61 (2.19)	-4.87 (0.09)
RD			-3.08 (2.13)	-10.44** (5.48)	15.08 (0.02)
FORECAST_DISP			1.69 (2.66)	2.95* (3.05)	7.62 (0.09)
IVOL			3.34 (2.29)	0.41 (0.01)	20.09 (0.18)
SYS_RISK			0.06 (0.26)	0.08 (0.19)	-0.59 (0.04)
YEAR F.E.	Y	Y	Y	Y	Y
INDUSTRY F.E.	Y	Y	Y	Y	N
FIRM F.E.	N	N	N	N	Y
NOBS	1145	1490	1469	1129	1145
RSQ	0.11	0.08	0.08	0.11	0.25

Table 7: Determinants of the Amount of Signing Bonus

This table reports estimations of Tobit model. Panel A and Panel use continuous measurements of cash signing bonus and equity signing bonus as dependent variable respectively. The continuous measurements is defined in section 3.2. Model 1 to Model 4 and Model 6 to Model 9 control year and industry fixed effect while Model 5 and Model 10 controls year and firm fixed effect. Chi-Square is report in parenthesis. \*,\*\*, and \*\*\* indicate significance at 1%, 5%, and 10% level. All continuous variables are winsorized at 1% and 99% level.

PANEL A: MEASUREMENTS OF CASH SIGNING BONUS										
DEP VAR	BROAD CASH					NARROWED CASH				
	MODEL1	MODEL2	MODEL3	MODEL4	MODEL5	MODEL6	MODEL7	MODEL8	MODEL9	MODEL10
GENERALIST	1.60*** (18.82)			1.68*** (20.28)	0.33*** (4.27)	1.65*** (10.47)			1.79*** (11.71)	0.21*** (3.82)
INDUSTRY EXPOSURE	0.52*** (26.38)			0.50*** (23.15)	0.08*** (3.50)	0.58*** (17.06)			0.54*** (14.23)	0.05*** (3.12)
AGE	-0.07* (2.90)			-0.07* (2.94)	0.00 (0.05)	-0.04 (0.43)			-0.05 (0.69)	0.00 (0.35)
EDU	2.41* (3.43)			2.54* (3.51)	0.71*** (2.71)	2.83 (2.60)			2.89 (2.42)	0.62*** (3.32)
FEMALE	-0.44 (0.11)			-0.29 (0.04)	0.06 (0.24)	-0.24 (0.02)			-0.20 (0.01)	0.18 (1.09)
FCF		-6.67*** (6.79)		-6.74* (3.09)	1.23 (1.47)		-2.25 (0.47)		-0.92 (0.03)	1.25** (2.11)
TBQ		-0.04 (0.07)		-0.05 (0.04)	0.00 (0.03)		-0.03 (0.01)		-0.11 (0.09)	-0.02 (-0.41)
TOP5INSTOWN		-0.02 (0.00)		1.64 (0.47)	0.85 (1.59)		-1.06 (0.27)		1.00 (0.09)	0.57 (1.50)
EINDEX		0.02 (0.02)		-0.15 (0.45)	0.06 (1.39)		0.10 (0.24)		-0.05 (0.02)	0.03 (0.86)
LOG(AT)			0.10 (0.59)	0.04 (0.03)	0.10 (0.94)			0.31* (3.10)	0.15 (0.29)	0.09 (1.15)
LEV			0.08 (0.00)	-0.88 (0.18)	0.86* (1.70)			0.43 (0.06)	0.77 (0.07)	0.94*** (2.61)
RD			5.21 (1.36)	-9.52 (1.48)	-1.42 (-0.50)			9.33 (2.69)	-6.41 (0.35)	-1.70 (-0.84)
FORECAST_DISP			9.16*** (10.24)	9.43** (4.88)	0.60 (0.60)			6.47* (3.01)	9.14 (2.31)	1.06 (1.50)
IVOL			13.52*** (6.89)	20.39*** (6.65)	2.47 (1.62)			17.31*** (6.66)	30.89*** (8.11)	1.79* (1.65)
SYS_RISK			0.44 (2.25)	-0.01 (0.00)	-0.10 (-1.17)			0.56 (2.12)	0.32 (0.30)	-0.09 (-1.46)
YEAR F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
INDUSTRY F.E.	Y	Y	Y	Y	N	Y	Y	Y	Y	N
FIRM F.E.	N	N	N	N	Y	N	N	N	N	Y
NOBS	1138	1478	1457	1122	1122	1138	1478	1457	1122	1122
RSQ	0.50	0.05	0.09	0.53	0.48	0.54	0.06	0.11	0.57	0.56

Table 7: Determinants of the Amount of Signing Bonus

PANEL B: MEASUREMENTS OF EQUITY SIGNING BONUS										
DEP VAR	BROAD EQUITY					NARROWED EQUITY				
	MODEL1	MODEL2	MODEL3	MODEL4	MODEL5	MODEL6	MODEL7	MODEL8	MODEL9	MODEL10
GENERALIST	2.53 (0.90)			2.75 (1.00)	-0.49** (-2.03)	-0.57 (0.20)			-0.57 (0.18)	-0.29*** (-3.66)
INDUSTRY EXPOSURE	2.14*** (9.66)			2.21*** (8.66)	0.28*** (3.90)	1.17*** (14.36)			1.26*** (13.26)	0.19*** (8.00)
AGE	-0.32 (1.12)			-0.42 (1.75)	-0.01 (-0.49)	-0.13 (0.88)			-0.18 (1.47)	0.00 (0.15)
EDU	12.77 (2.58)			13.17 (2.23)	2.59*** (3.12)	6.26* (2.95)			6.86 (2.66)	0.85*** (3.12)
FEMALE	5.47 (0.51)			4.51 (0.30)	0.82 (1.09)	0.75 (0.04)			-0.88 (0.04)	-0.13 (-0.54)
FCF		-15.71 (0.52)		-29.32 (0.96)	5.69** (2.15)		-16.90* (2.87)		-29.22* (3.59)	-0.30 (-0.34)
TBQ		-2.03 (1.62)		0.48 (0.06)	-0.38** (-2.11)		-1.36* (3.05)		-0.14 (0.02)	-0.07 (-1.09)
TOP5INSTOWN		-24.23* (3.26)		-16.22 (0.79)	2.93* (1.72)		-11.70** (3.89)		-10.11 (1.38)	0.27 (0.49)
EINDEX		-1.13 (0.81)		-2.01 (1.45)	0.19 (1.35)		-0.58 (1.11)		-1.14 (2.16)	0.08* (1.78)
LOG(AT)			3.46*** (9.63)	2.07 (2.26)	0.46 (1.37)			0.74 (2.23)	-0.28 (0.17)	-0.03 (-0.24)
LEV			-6.62 (0.38)	-19.25 (1.59)	2.00 (1.24)			2.06 (0.19)	0.78 (0.01)	0.68 (1.28)
RD			-25.56 (0.39)	-45.05 (0.67)	22.86** (2.53)			-6.55 (0.13)	-19.45 (0.59)	6.37** (2.14)
FORECAST_DISP			-6.62 (0.09)	11.73 (0.14)	-5.08 (-1.61)			9.42 (0.90)	28.79* (3.58)	2.09** (2.01)
IVOL			3.91 (0.01)	-41.39 (0.39)	10.09** (2.09)			-9.33 (0.20)	-55.63* (2.76)	1.08 (0.68)
SYS_RISK			0.80 (0.10)	-0.15 (0.00)	-0.67** (-2.55)			0.79 (0.50)	0.20 (0.02)	-0.28*** (-3.26)
YEAR F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
INDUSTRY F.E.	Y	Y	Y	Y	N	Y	Y	Y	Y	N
FIRM F.E.	N	N	N	N	Y	N	N	N	N	Y
NOBS	1138	1478	1457	1122	1122	1138	1478	1457	1122	1122
RSQ	0.43	0.09	0.13	0.46	0.39	0.47	0.13	0.16	0.51	0.50



Table 9: CAR around CEO Succession

This table reports cumulative abnormal return (*CAR*) around CEO succession. Event date is public announcement date regarding CEO succession. Column (2), (3), (5), and (7) report the mean value of *CAR* with different time window. Column (4), (6), and (8) report two-sample mean difference. T-statistics is report in parenthesis. \*,\*\*, and \*\*\* indicate significance at 1%, 5%, and 10% level. All continuous variables are winsorized at 1% and 99% level.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLE	NOT AWARD	AWARD CASH	AWARD CASH-NOT AWARD	AWARD EQUITY	AWARD EQUITY-NOT AWARD	AWARD BOTH	AWARD BOTH-NOT AWARD
CAR(-1,1)	-0.58%*	0.21%	0.79	0.40%	0.98	1.26%*	1.85%*
	(-1.92)	(0.38)	(1.26)	(0.42)	(0.99)	(1.68)	(2.28)
CAR(-1,2)	-1.06%***	0.66%	1.72%*	-0.42%	0.64	0.95%	2.01%*
	(-2.77)	(0.97)	(2.21)	(-0.22)	(0.34)	(1.16)	(2.22)
CAR(-1,3)	-0.43%	0.12%	0.55	2.04%	2.47	0.08%	0.51
	(-1.35)	(0.18)	(0.74)	(0.97)	(1.16)	(0.08)	(0.46)
CAR(-2,2)	-1.04%***	1.15%	2.19%*	-0.04%	1.00	1.04%	2.08%*
	(-2.65)	(1.45)	(2.48)	(-0.02)	(0.46)	(1.01)	(1.89)
CAR(-3,3)	-0.33%	1.37%	1.71	1.73%	2.06	1.43%	1.76
	(-0.93)	(1.37)	(1.60)	(0.78)	(0.92)	(1.14)	(1.35)

Table 10: Signing Bonus and Market Reaction

This table report OLS estimation of  $CAR$  (in percentage) around CEO succession. Depend variable of each model are indicated at the second row. Standard errors are adjusted for heteroscedasticity-consistence. T-statistics is report in parenthesis. \*,\*\*, and \*\*\* indicate significance at 1%, 5%, and 10% level. All continuous variables are winsorized at 1% and 99% level.

DEP VAR (%)	MODEL1	MODEL2	MODEL3	MODEL4	MODEL5	MODEL6
	CAR(-1,1)	CAR(-1,1)	CAR(-2,2)	CAR(-2,2)	CAR(-3,3)	CAR(-3,3)
DUMMY(CASH)	1.25* (1.62)	1.20* (1.60)	2.18* (1.76)	2.64** (2.22)	2.47 (1.57)	2.81* (1.82)
BROAD CASH	-0.22 (-0.84)		-0.15 (-0.42)		0.12 (0.37)	
NARROWED CASH		-0.29 (-0.91)		-0.57 (-1.27)		-0.03 (-0.07)
DUMMY(EQUITY)	-2.80** (-2.09)	-1.03 (-0.74)	-3.94 (-1.34)	-2.04 (-0.75)	2.41 (0.71)	2.65 (0.93)
BROAD EQUITY	0.20*** (3.21)		0.22** (2.04)		0.05 (0.36)	
NARROWED EQUITY		0.28 (1.44)		0.34 (1.02)		0.11 (0.27)
DUMMY(BOTH)	-0.12 (-0.09)	1.03 (0.73)	-0.95 (-0.62)	0.71 (0.40)	1.95 (1.02)	2.46 (0.99)
LOG(AT)	0.19 (1.33)	0.25* (1.71)	0.53*** (2.64)	0.59*** (2.88)	0.41 (1.51)	0.44 (1.58)
LEV	-0.74 (-0.35)	-0.95 (-0.44)	-2.30 (-0.81)	-2.43 (-0.85)	2.39 (0.65)	2.29 (0.62)
FCF	0.27 (0.06)	0.21 (0.05)	0.02 (0.00)	0.45 (0.08)	-0.78 (-0.12)	-0.60 (-0.10)
TOBIN'S Q	-0.66** (-2.09)	-0.66** (-2.08)	-0.29 (-0.71)	-0.30 (-0.74)	0.36 (0.68)	0.36 (0.69)
TOP5INSTOWN	0.77 (0.29)	0.91 (0.34)	0.79 (0.22)	0.89 (0.25)	-3.75 (-1.06)	-3.75 (-1.07)
IVOL	-9.41 (-0.92)	-7.39 (-0.72)	-17.82 (-1.34)	-15.38 (-1.15)	1.47 (0.09)	1.86 (0.12)
GENERALIST	0.28 (0.50)	0.31 (0.54)	-0.51 (-0.62)	-0.54 (-0.65)	-0.93 (-0.89)	-0.85 (-0.80)
INDUSTRY_EXPOSURE	0.02 (0.15)	0.01 (0.12)	0.16 (0.90)	0.16 (0.90)	0.19 (0.79)	0.18 (0.73)
YEAR F.E.	Y	Y	Y	Y	Y	Y
INDUSTRY F.E.	Y	Y	Y	Y	Y	Y
NOBS	630	630	468	468	430	430
RSQ	0.06	0.05	0.08	0.08	0.06	0.06



Table 11: Signing Bonus and Long Term Operational Performance

This table reports *Dif-in-Dif* analysis of firms' return on asset (*ROA*) and return on equity (*ROE*) in percentage. Panel A to Panel C include treatment groups issuing different type of signing bonus and their matched sample. Standard errors are adjusted for heteroscedasticity-consistence. T-statistics is report in parenthesis. \*, \*\*, and \*\*\* indicate significance at 1%, 5%, and 10% level. All continuous variables are winsorized at 1% and 99% level.

PANEL A: TREATMENT GROUP=AWARD CASH SIGNING BONUS						
DEP VAR (%)	ROA			ROE		
	MODEL1	MODEL2	MODEL3	MODEL4	MODEL5	MODEL6
DUMMY(CASH) × AFTER	2.32*			15.95**		
	(1.72)			(1.97)		
BROAD × AFTER		0.56*			2.04*	
		(1.81)			(1.72)	
NARROWED × AFTER			0.63			3.81**
			(1.23)			(2.12)
DUMMY(CASH)	-1.82			2.57		
	(-1.56)			(0.48)		
BROAD CASH		-0.34			-1.77*	
		(-1.48)			(-1.70)	
NARROWED CASH			-0.69**			-4.33***
			(-2.12)			(-3.06)
AFTER	-1.15*	-0.98	-0.89	-1.70	0.30	0.28
	(-1.81)	(-1.64)	(-1.51)	(-0.57)	(0.10)	(0.09)
LOG(AT)	0.08	0.10	0.17	0.56	1.54	1.89
	(0.24)	(0.27)	(0.50)	(0.38)	(1.02)	(1.28)
LEV	-8.01***	-8.10***	-8.16***	8.79	8.56	8.28
	(-3.16)	(-3.18)	(-3.22)	(0.69)	(0.67)	(0.65)
FCF	29.55***	29.69***	29.69***	47.28**	46.74**	46.58**
	(4.56)	(4.55)	(4.55)	(2.03)	(2.03)	(2.02)
TOBIN'S Q	0.72**	0.72**	0.74**	1.84	1.83	1.93
	(2.16)	(2.14)	(2.20)	(1.47)	(1.49)	(1.57)
SALARY	0.00**	0.00**	0.00*	0.01	0.00	-0.00
	(2.20)	(2.06)	(1.88)	(1.33)	(0.20)	(-0.09)
TOP5INSTOWN	5.55*	5.32*	5.36*	-7.99	-5.31	-5.10
	(1.85)	(1.77)	(1.79)	(-0.60)	(-0.40)	(-0.38)
GENERALIST INDEX	0.28	0.25	0.34	1.67	1.75	1.97
	(0.36)	(0.33)	(0.45)	(0.36)	(0.37)	(0.43)
INDUSTRY EXPOSURE	0.00	-0.01	-0.02	0.38	0.60	0.60
	(0.00)	(-0.00)	(-0.00)	(0.02)	(0.03)	(0.03)
AGE	-0.06	-0.06	-0.06	0.21	0.20	0.19
	(-0.96)	(-0.98)	(-0.98)	(0.88)	(0.82)	(0.80)
PHD	1.48	1.39	1.40	5.63	5.65	5.66
	(1.30)	(1.21)	(1.20)	(0.65)	(0.65)	(0.66)
FEMALE	0.38	0.27	0.20	8.22	7.35	6.90
	(0.41)	(0.30)	(0.22)	(0.68)	(0.61)	(0.57)
YEAR F.E.	Y	Y	Y	Y	Y	Y
INDUSTRY F.E	Y	Y	Y	Y	Y	Y
NOBS	860	860	860	860	860	860
RSQ	0.63	0.63	0.63	0.35	0.34	0.35

Table 11: Signing Bonus and Long Term Operational Performance

PANEL B: TREATMENT GROUP=AWARD EQUITY SIGNING BONUS						
DEP VAR (%)	ROA			ROE		
	MODEL1	MODEL2	MODEL3	MODEL4	MODEL5	MODEL6
DUMMY(EQUITY) × AFTER	0.15 (0.11)			10.83 (0.92)		
BROAD × AFTER		-0.05 (-0.69)			-1.20** (-2.11)	
NARROWED × AFTER			0.33 (0.97)			-0.23 (-0.10)
DUMMY(EQUITY)	-0.65 (-0.59)			-9.71 (-1.01)		
BROAD EQUITY		0.01 (0.14)			0.81* (1.72)	
NARROWED EQUITY			-0.16 (-0.86)			0.40 (0.21)
AFTER	-0.40 (-0.71)	-0.35 (-0.64)	-0.46 (-0.84)	8.00*** (2.65)	9.60*** (3.24)	8.71*** (2.95)
LOG(AT)	0.54* (1.76)	0.55* (1.70)	0.53* (1.74)	3.34** (2.17)	3.07* (1.95)	3.25** (2.12)
LEV	-6.39** (-2.55)	-6.45** (-2.55)	-6.30** (-2.51)	7.72 (0.54)	8.09 (0.56)	7.56 (0.53)
FCF	34.00*** (5.33)	33.97*** (5.32)	33.96*** (5.32)	52.24** (2.06)	52.05** (2.05)	52.11** (2.06)
TOBIN'S Q	0.82** (2.00)	0.82** (2.00)	0.82** (2.00)	1.49 (0.87)	1.48 (0.87)	1.48 (0.87)
SALARY	0.00 (0.21)	0.00 (0.20)	0.00 (0.25)	-0.01 (-1.15)	-0.01 (-0.91)	-0.01 (-1.05)
TOP5INSTOWN	4.58 (1.56)	4.58 (1.56)	4.60 (1.57)	7.06 (0.47)	7.59 (0.50)	7.45 (0.49)
GENERALIST INDEX	-0.28 (-0.37)	-0.26 (-0.34)	-0.29 (-0.37)	-3.25 (-0.65)	-3.27 (-0.66)	-3.19 (-0.64)
INDUSTRY EXPOSURE	0.11 (0.03)	0.11 (0.03)	0.11 (0.03)	0.62 (0.03)	0.63 (0.03)	0.61 (0.03)
AGE	0.07 (1.39)	0.07 (1.38)	0.07 (1.38)	0.42 (1.52)	0.42 (1.52)	0.41 (1.49)
PHD	1.21 (0.99)	1.21 (0.99)	1.22 (0.99)	-1.10 (-0.06)	-1.10 (-0.06)	-1.06 (-0.06)
FEMALE	-0.66 (-0.75)	-0.64 (-0.72)	-0.66 (-0.74)	0.90 (0.09)	0.65 (0.06)	0.93 (0.09)
YEAR F.E.	Y	Y	Y	Y	Y	Y
INDUSTRY F.E	Y	Y	Y	Y	Y	Y
NOBS	986	986	986	986	986	986
RSQ	0.62	0.62	0.62	0.25	0.25	0.25

Table 11: Signing Bonus and Long Term Operational Performance

PANEL C: TREATMENT GROUP=AWARD CASH & EQUITY SIGNING BONUS						
DEP VAR (%)	ROA			ROE		
	MODEL1	MODEL2	MODEL3	MODEL4	MODEL5	MODEL6
DUMMY(BOTH) × AFTER	1.34 (0.71)			-13.95 (-1.28)		
BROAD CASH × AFTER		0.80** (2.37)			-1.44 (-0.64)	
NARROWED CASH × AFTER			0.66* (1.87)			-0.85 (-0.43)
BROAD EQUITY × AFTER		-0.19* (-1.86)			-0.12 (-0.17)	
NARROWED EQUITY × AFTER			-0.30 (-1.55)			-0.97 (-0.59)
BROAD CASH		-0.33 (-1.26)			0.83 (0.65)	
NARROWED CASH			-0.04 (-0.13)			1.75 (1.17)
BROAD EQUITY		0.15* (1.90)			0.43 (1.29)	
NARROWED EQUITY			0.58** (2.48)			1.32 (1.18)
DUMMY(BOTH)	-1.18 (-0.79)		-3.23 (-1.62)	7.62 (1.04)		-5.89 (-0.67)
AFTER	-0.39 (-0.69)	-0.29 (-0.53)	-0.31 (-0.55)	8.39*** (2.79)	7.79*** (2.64)	7.85*** (2.65)
LOG(AT)	0.54* (1.78)	0.45 (1.36)	0.43 (1.37)	2.97* (1.94)	2.43 (1.54)	2.69* (1.75)
LEV	-4.62* (-1.72)	-4.43 (-1.63)	-4.65* (-1.73)	16.64 (1.14)	17.05 (1.17)	16.23 (1.12)
FCF	35.18*** (5.65)	35.32*** (5.68)	35.18*** (5.67)	62.14** (2.57)	62.19** (2.58)	62.00** (2.57)
TOBIN'S Q	0.94** (2.33)	0.95** (2.33)	0.89** (2.18)	1.91 (1.15)	1.86 (1.11)	1.75 (1.03)
SALARY	-0.00 (-0.23)	0.00 (0.12)	0.00 (0.26)	-0.01 (-1.10)	-0.01 (-0.73)	-0.01 (-0.85)
TOP5INSTOWN	5.33* (1.81)	5.46* (1.85)	5.42* (1.84)	12.39 (0.83)	12.73 (0.85)	12.58 (0.84)
GENERALIST INDEX	0.02 (0.03)	0.03 (0.04)	0.00 (0.00)	-2.44 (-0.48)	-2.68 (-0.53)	-2.68 (-0.52)
INDUSTRY EXPOSURE	-0.03 (-0.01)	-0.05 (-0.01)	-0.04 (-0.01)	-0.02 (-0.00)	-0.00 (-0.00)	0.01 (0.00)
AGE	0.07 (1.26)	0.07 (1.36)	0.06 (1.24)	0.38 (1.38)	0.39 (1.40)	0.37 (1.35)
PHD	-1.18 (-0.67)	-1.59 (-0.84)	-0.91 (-0.54)	-5.41 (-0.42)	-6.70 (-0.52)	-5.24 (-0.41)
FEMALE	0.19 (0.19)	0.10 (0.10)	0.00 (0.00)	2.85 (0.26)	2.56 (0.24)	2.15 (0.20)
YEAR F.E.	Y	Y	Y	Y	Y	Y
INDUSTRY F.E.	Y	Y	Y	Y	Y	Y
NOBS	1003	1003	1003	1003	1003	1003
RSQ	0.60	0.60	0.60	0.24	0.24	0.24

Table 12: Signing Bonus and Long Term Stock Return

This table reports *Dif-in-Dif* analysis of firms' Buy and Hold Abnormal Return (*BHAR*) in percentage. Panel A to Panel C include treatment groups issuing different type of signing bonus and their matched sample. Standard errors are adjusted for heteroscedasticity-consistence. T-statistics is report in parenthesis. \*, \*\*, and \*\*\* indicate significance at 1%, 5%, and 10% level. All continuous variables are winsorized at 1% and 99% level.

PANEL A: TREATMENT GROUP=AWARD CASH SIGNING BONUS									
DEP VAR (%)	12 MON BHAR	12 MON BHAR	12 MON BHAR	24 MON BHAR	24 MON BHAR	24 MON BHAR	36 MON BHAR	36 MON BHAR	36 MON BHAR
DUMMY(CASH) × AFTER	1.58 (0.21)			19.02* (1.85)			23.19* (1.66)		
BROAD CASH × AFTER		0.00 (0.00)			1.26 (0.60)			1.55 (0.50)	
NARROWED CASH × AFTER			-0.64 (-0.36)			0.56 (0.20)			1.91 (0.41)
DUMMY(CASH)	-4.63 (-1.07)			-12.84** (-2.44)			-10.11* (-1.68)		
BROAD CASH		-0.98 (-1.13)			-2.05* (-1.81)			-2.28 (-1.49)	
NARROWED CASH			-1.74* (-1.76)			-3.10** (-2.19)			-4.51** (-2.11)
AFTER	-11.55*** (-4.12)	-11.28*** (-4.22)	-11.15*** (-4.19)	-9.28** (-2.16)	-6.72* (-1.67)	-6.40 (-1.61)	-6.28 (-1.18)	-3.11 (-0.62)	-2.97 (-0.59)
LOG(AT)	1.74 (1.17)	2.03 (1.29)	2.19 (1.40)	2.99 (1.50)	3.48 (1.63)	3.64* (1.73)	3.04 (1.26)	3.77 (1.49)	4.09 (1.64)
LEV	14.14 (0.91)	13.45 (0.86)	13.61 (0.88)	28.89 (1.64)	28.71 (1.62)	29.10 (1.64)	42.57* (1.86)	42.06* (1.85)	42.38* (1.87)
FCF	6.45 (0.22)	6.66 (0.23)	7.04 (0.24)	10.68 (0.25)	11.12 (0.26)	11.96 (0.28)	-0.54 (-0.01)	0.15 (0.00)	1.14 (0.02)
TOBIN'S Q	-4.51** (-2.43)	-4.44** (-2.37)	-4.34** (-2.32)	-2.74 (-0.76)	-2.59 (-0.71)	-2.46 (-0.67)	-8.15** (-2.06)	-8.02** (-2.02)	-7.81* (-1.96)
SALARY	-0.01 (-0.97)	-0.01 (-1.10)	-0.01 (-1.23)	-0.02 (-1.59)	-0.02* (-1.72)	-0.02* (-1.84)	-0.01 (-0.79)	-0.01 (-1.15)	-0.02 (-1.34)
TOP5INSTOWN	7.29 (0.53)	6.78 (0.49)	6.93 (0.50)	-22.59 (-1.02)	-22.89 (-1.04)	-22.83 (-1.04)	-17.61 (-0.73)	-17.88 (-0.74)	-17.74 (-0.74)
GENERALIST INDEX	1.80 (0.47)	2.12 (0.55)	2.09 (0.55)	-3.00 (-0.58)	-2.56 (-0.50)	-2.67 (-0.52)	-5.29 (-0.83)	-4.58 (-0.73)	-4.48 (-0.71)
INDUSTRY EXPOSURE	-0.45 (-0.01)	-0.54 (-0.01)	-0.53 (-0.01)	-0.47 (-0.01)	-0.57 (-0.01)	-0.55 (-0.01)	0.55 (0.01)	0.48 (0.01)	0.47 (0.01)
AGE	0.13 (0.49)	0.13 (0.50)	0.13 (0.48)	0.26 (0.74)	0.27 (0.76)	0.26 (0.74)	0.39 (0.91)	0.39 (0.91)	0.38 (0.88)
PHD	15.52 (1.19)	15.37 (1.18)	15.41 (1.19)	27.72 (1.58)	27.40 (1.54)	27.44 (1.55)	22.11 (1.05)	21.92 (1.03)	22.00 (1.04)
FEMALE	-2.88 (-0.46)	-3.19 (-0.51)	-3.42 (-0.55)	-7.41 (-0.86)	-8.01 (-0.92)	-8.29 (-0.96)	12.41 (1.44)	11.75 (1.36)	11.30 (1.31)
YEAR F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
INDUSTRY F.E	Y	Y	Y	Y	Y	Y	Y	Y	Y
NOBS	1208	1208	1208	1139	1139	1139	1066	1066	1066
RSQ	0.12	0.12	0.12	0.11	0.11	0.11	0.14	0.14	0.14

Table 12: Signing Bonus and Long Term Stock Return

PANEL B: TREATMENT GROUP=AWARD EQUITY SIGNING BONUS									
DEP VAR (%)	12 MON BHAR	12 MON BHAR	12 MON BHAR	24 MON BHAR	24 MON BHAR	24 MON BHAR	36 MON BHAR	36 MON BHAR	36 MON BHAR
DUMMY(EQUITY) × AFTER	-7.29 (-0.59)			-15.91 (-1.08)			-1.40 (-0.09)		
BROAD EQUITY × AFTER		-1.04 (-1.53)			-1.30* (-1.78)			-0.58 (-0.81)	
NARROWED EQUITY × AFTER			-0.98 (-0.47)			-2.48 (-0.94)			2.63 (0.77)
DUMMY(EQUITY)	-4.50 (-0.75)		-15.32* (-1.75)	-9.36 (-1.38)		-22.03** (-2.19)	-8.14 (-1.19)		-21.34** (-2.16)
BROAD EQUITY		-0.28 (-0.70)			-0.59 (-1.41)			-0.50 (-1.36)	
NARROWED EQUITY			2.40 (1.60)			2.55 (1.55)			2.86* (1.78)
AFTER	-11.83*** (-4.27)	-11.48*** (-4.20)	-11.98*** (-4.38)	-9.41** (-2.22)	-9.33** (-2.24)	-9.75** (-2.35)	-6.11 (-1.17)	-5.75 (-1.12)	-6.41 (-1.26)
LOG(AT)	1.08 (0.70)	1.14 (1.11)	1.14 (0.74)	2.27 (1.14)	3.15 (1.52)	2.31 (1.15)	2.77 (1.21)	3.39 (1.42)	2.91 (1.28)
LEV	14.92 (1.12)	12.33 (0.92)	15.29 (1.15)	23.20 (1.43)	19.12 (1.17)	23.38 (1.44)	47.39** (2.19)	44.62** (2.05)	47.20** (2.20)
FCF	-0.04 (-0.00)	-0.63 (-0.02)	0.59 (0.02)	-1.51 (-0.03)	-3.11 (-0.07)	-1.10 (-0.02)	-16.43 (-0.31)	-17.35 (-0.33)	-15.67 (-0.30)
TOBIN'S Q	-4.18** (-2.14)	-4.11** (-2.10)	-4.12** (-2.11)	-2.02 (-0.51)	-1.95 (-0.49)	-1.98 (-0.50)	-6.73 (-1.60)	-6.68 (-1.59)	-6.66 (-1.59)
SALARY	-0.00 (-0.49)	-0.01 (-0.95)	-0.00 (-0.43)	-0.01 (-1.32)	-0.02* (-1.73)	-0.01 (-1.26)	-0.02 (-1.20)	-0.02 (-1.41)	-0.01 (-1.18)
TOP5INSTOWN	-0.60 (-0.04)	-1.51 (-0.11)	-0.20 (-0.01)	-41.91* (-1.84)	-43.15* (-1.88)	-41.67* (-1.83)	-30.54 (-1.23)	-31.50 (-1.26)	-28.99 (-1.16)
GENERALIST INDEX	1.92 (0.42)	2.82 (0.64)	2.01 (0.45)	-0.84 (-0.14)	0.59 (0.10)	-0.72 (-0.12)	-3.27 (-0.48)	-2.33 (-0.35)	-3.06 (-0.46)
INDUSTRY EXPOSURE	-1.27 (-0.03)	-1.39 (-0.03)	-1.28 (-0.03)	-0.77 (-0.01)	-0.97 (-0.02)	-0.77 (-0.01)	-0.87 (-0.02)	-1.00 (-0.02)	-0.93 (-0.02)
AGE	0.36 (1.38)	0.36 (1.39)	0.34 (1.32)	0.32 (0.88)	0.31 (0.86)	0.31 (0.83)	0.58 (1.29)	0.57 (1.28)	0.55 (1.24)
PHD	25.84* (1.68)	25.86* (1.68)	26.02* (1.69)	36.21* (1.82)	36.33* (1.82)	36.35* (1.82)	32.22 (1.32)	32.34 (1.33)	32.34 (1.32)
FEMALE	-5.26 (-0.77)	-4.30 (-0.64)	-4.69 (-0.69)	-7.44 (-0.83)	-5.83 (-0.65)	-6.85 (-0.76)	9.96 (1.19)	10.89 (1.31)	11.10 (1.33)
YEAR F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
INDUSTRY F.E	Y	Y	Y	Y	Y	Y	Y	Y	Y
NOBS	1071	1071	1071	1014	1014	1014	944	944	944
RSQ	0.16	0.16	0.16	0.14	0.14	0.14	0.16	0.16	0.16

Table 12: Signing Bonus and Long Term Stock Return

PANEL C: TREATMENT GROUP=AWARD CASH & EQUITY SIGNING BONUS									
DEP VAR (%)	12 MON BHAR	12 MON BHAR	12 MON BHAR	24 MON BHAR	24 MON BHAR	24 MON BHAR	36 MON BHAR	36 MON BHAR	36 MON BHAR
DUMMY(BOTH) × AFTER	-26.12*			-9.61			-27.00		
	(-1.93)			(-0.52)			(-1.04)		
BROAD CASH × AFTER		-3.04			4.10			6.40	
		(-0.85)			(0.94)			(1.02)	
NARROWED CASH × AFTER			-7.54*			-0.03			0.73
			(-1.95)			(-0.01)			(0.13)
BROAD EQUITY × AFTER		-1.29			-1.36			-1.81	
		(-1.54)			(-1.11)			(-0.90)	
NARROWED EQUITY × AFTER			-0.36			1.11			2.85
			(-0.23)			(0.51)			(0.93)
BROAD CASH		3.85*			-0.63			-0.39	
		(1.73)			(-0.25)			(-0.21)	
NARROWED CASH			4.23*			-1.44			-1.64
			(1.77)			(-0.57)			(-0.86)
BROAD EQUITY		-0.04			-0.13			-0.57	
		(-0.11)			(-0.22)			(-0.96)	
NARROWED EQUITY			0.61			0.97			0.38
			(0.72)			(0.83)			(0.30)
DUMMY(BOTH)	8.57			-10.18			-10.70		
	(1.21)			(-1.28)			(-1.27)		
AFTER	-11.53***	-11.64***	-11.94***	-9.03**	-9.42**	-10.03**	-5.78	-7.43	-8.47
	(-4.16)	(-4.21)	(-4.29)	(-2.13)	(-2.25)	(-2.37)	(-1.10)	(-1.43)	(-1.61)
LOG(AT)	1.41	1.68	0.99	2.78	3.04	1.76	2.72	3.14	1.61
	(0.97)	(1.09)	(0.68)	(1.41)	(1.43)	(0.89)	(1.17)	(1.28)	(0.68)
LEV	8.71	8.38	9.19	13.96	14.91	16.65	35.21	37.45*	40.01*
	(0.63)	(0.60)	(0.65)	(0.83)	(0.88)	(0.98)	(1.56)	(1.66)	(1.76)
FCF	1.38	2.62	2.54	-12.26	-9.44	-9.29	-28.70	-25.24	-24.07
	(0.05)	(0.09)	(0.08)	(-0.27)	(-0.21)	(-0.20)	(-0.55)	(-0.49)	(-0.46)
TOBIN'S Q	-3.88*	-3.94**	-3.88*	-1.13	-0.97	-0.83	-6.27	-6.01	-5.86
	(-1.92)	(-1.99)	(-1.94)	(-0.29)	(-0.25)	(-0.22)	(-1.53)	(-1.46)	(-1.42)
SALARY	-0.00	-0.01	-0.00	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01
	(-0.61)	(-0.72)	(-0.27)	(-1.56)	(-1.56)	(-0.99)	(-0.94)	(-1.09)	(-0.49)
TOP5INSTOWN	4.77	4.86	5.57	-28.21	-27.45	-26.24	-16.00	-15.51	-15.97
	(0.33)	(0.34)	(0.38)	(-1.23)	(-1.18)	(-1.12)	(-0.62)	(-0.60)	(-0.61)
GENERALIST INDEX	4.17	3.68	3.59	0.53	0.19	0.11	1.68	1.52	0.72
	(0.99)	(0.90)	(0.88)	(0.09)	(0.03)	(0.02)	(0.25)	(0.22)	(0.10)
INDUSTRY EXPOSURE	-1.50	-1.50	-1.58	-0.99	-1.16	-1.37	-0.84	-1.19	-1.19
	(-0.03)	(-0.03)	(-0.03)	(-0.02)	(-0.02)	(-0.02)	(-0.02)	(-0.03)	(-0.03)
AGE	0.44*	0.44*	0.45*	0.48	0.51	0.53	0.65	0.68	0.68
	(1.68)	(1.71)	(1.73)	(1.31)	(1.40)	(1.44)	(1.44)	(1.52)	(1.51)
PHD	5.22	3.85	3.13	12.23	9.53	8.25	6.66	0.22	1.97
	(0.40)	(0.28)	(0.23)	(0.79)	(0.61)	(0.53)	(0.35)	(0.01)	(0.10)
FEMALE	-4.48	-5.43	-4.89	-12.46	-13.12	-12.56	7.78	9.00	9.88
	(-0.68)	(-0.81)	(-0.73)	(-1.29)	(-1.35)	(-1.29)	(0.88)	(1.01)	(1.11)
YEAR F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
INDUSTRY F.E	Y	Y	Y	Y	Y	Y	Y	Y	Y
NOBS	1086	1086	1086	1031	1031	1031	959	959	959
RSQ	0.14	0.15	0.15	0.12	0.11	0.11	0.15	0.15	0.14

Figure 1: Annual Distribution of CEO Succession with Signing Bonus

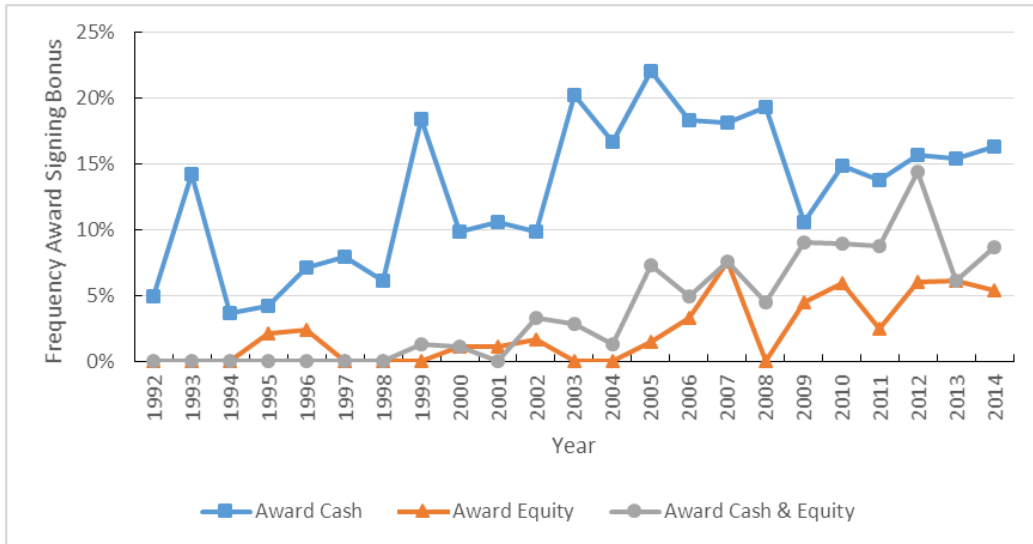


Figure 2: Abnormal Return Around CEO Succession

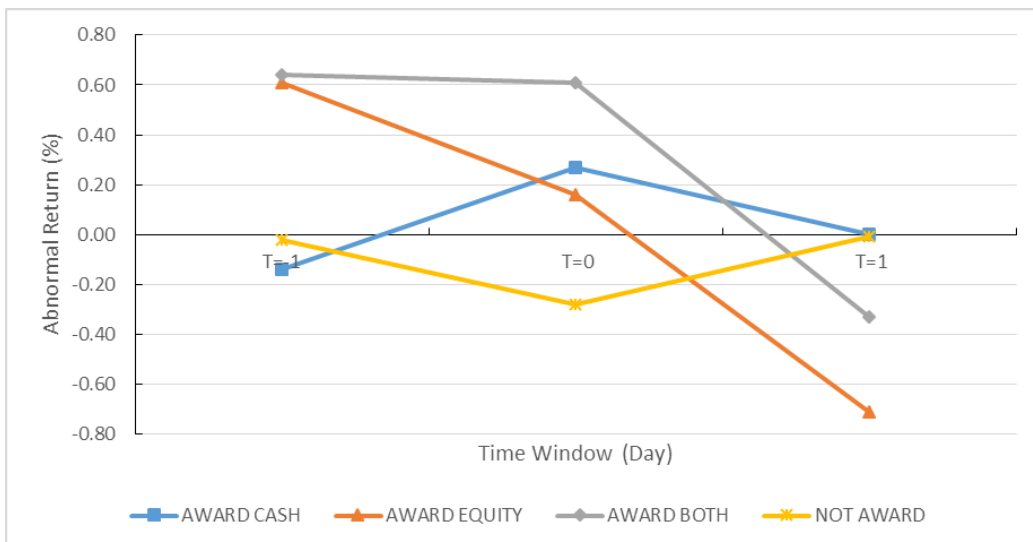


Figure 3: ROA Around CEO Succession-Matched Sample

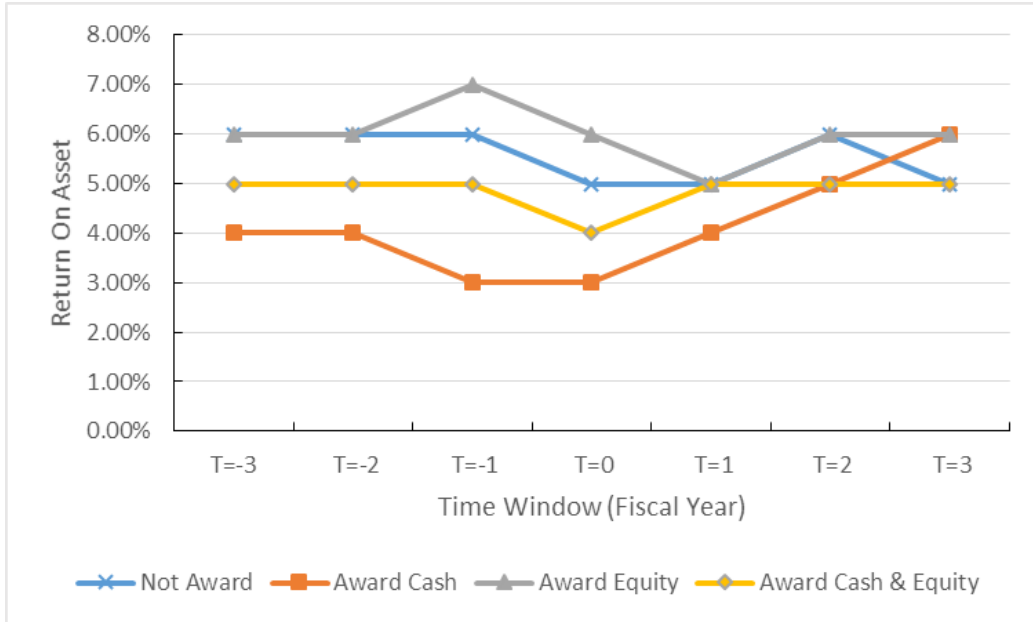


Figure 4: ROE Around CEO Succession-Matched Sample

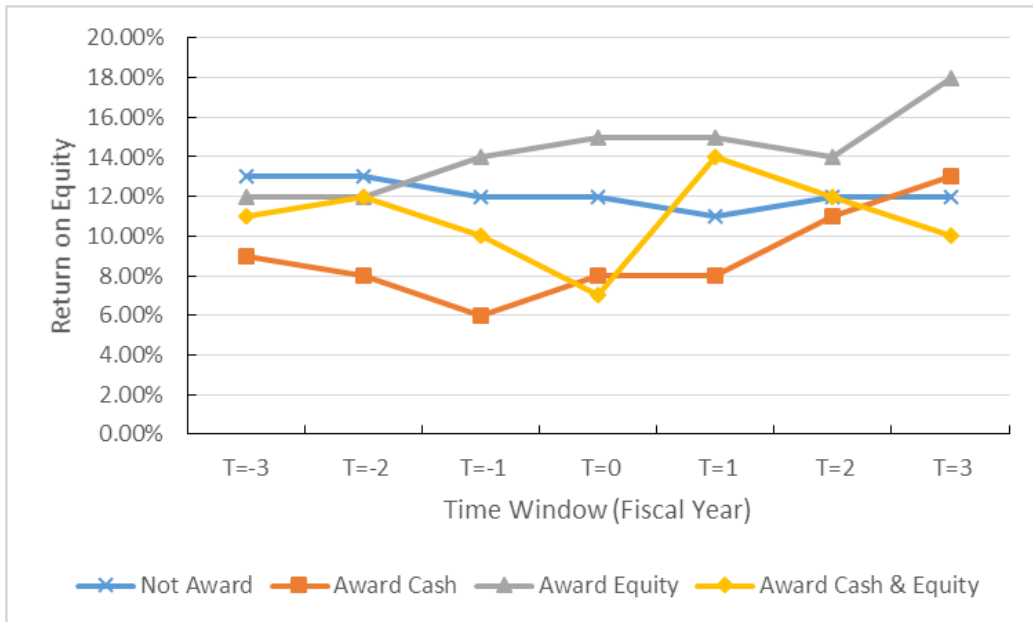




Figure 5: BHAR Around CEO Succession-Matched Sample

