The Structure and Pay Distribution in the Executive Team

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Abstract

In this paper, we explore the structure and pay distribution in the executive team. Our evidence shows that COO (CFO) became less (more) popular as a second-highest-paid executive in the top-five executives. Also, the CEO pay grew faster than that of a second-highest-paid one. During 1993-2006, while the CEO pay growth rate is 198%, that of the second-ranked one is 97%. Secondly, when COO (CFO) is the second-ranked one, CEO is relatively less (more) valued in the executive team. The fraction of CEO pay in the total executive team pay (CPS originally developed by Bebchuk, Cremers and Peyer (2007)) decreases (increases) by 1.8% (2.5%) at the firms with COO (CFO) as the second. Overall, the change in the hierarchy of a firm can explain the rise of CPS over the past years. Finally, CFO as the second is not the powerful candidate for CEO. The proportion of CFO as the second internally promoting to CEO in total CEO sucessions is only 1.6%. Also, it increases by 0.7% from the first period (1993-1999) to the second period (2000-2006). This implies that the change in the hierarchy of a firm is not driven by the strategy for internal promotion.

JEL Classification: D2, G30, J3

Keywords: Corporate Gorvernance, CEO compensation, Executive compensation, Production and Organization.

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1 Introduction

Many literatures study why CEO pay has been growing so much over time, but a little light has been shed on the pay distribution of executive teams. Bebchuk, Cremers and Peyer (2007) (hereafter, BCP(2007)) firstly point out that we need to understand the pay distribution because the rise in CEO pay can be an increase in the total compensation given to the top executive team or an increase in the CEO's fraction. Also, they provide some evidence for the pay distribution in U.S firms. They find that the fraction of CEO pay in the total top-five executive compensations (hereafter, CPS originally developed by BCP(2007)) in U.S. firms has been going up over 1993-2004. Among others, they find that the tenure of CEO is positively correlated with CPS. Also, when the CEO is the chairman of the board (duality), CPS is high. Overall, the pay distribution is associated with (1) the specialization in the CEO's role (tenure) and (2) the CEO's relatively more power and influence over the board of directors (duality).

In this paper, we explore the structure and pay distribution in the executive team. There are three main motivations for this paper. First, to explain the pay distribution in context of BCP(2007) has a limitation being not able to explain the time trend of CPS. As we mentioned above, CPS in U.S. firms has been going up over time. Kaplan and Minton (2006), however, show that the tenure of CEO became shorter during 1992-2005. From 1992 to 1997, the total CEO turnover is 13% on average and an average tenure is 7.7 years. From 1997 to 2005, total CEO turnover rises to 17.4%, implying an average CEO turnover of 5.8 years.[1] Additionally, our evidences show that an average duality (CEO is also the chairman of boards) decreases by 0.22 during 1993-2006. The chairman position tends to be seperated from CEO position. Second, the main determinant of a pay distribution in the executive team would be the relative impact of executives to the value of a firm. This idea mainly stems from Rajan and Wulf (2006). They analyze the relationship between the organization of a firm (hierarchical or horizontal structure) and the pay distribution of managers. They define the organization of a firm in the following way. If the number of manager reporting CEO directly are large or the intermediary executive (the executive between CEO and division managers) does not exist, those firms are classified as the horizontal organization. In a flattend firm, the CEO contacts with more managers directly. The span of CEO's control is considered as broad where the number of position directly reporting to CEO and the number of position between the CEO and the divisional manager (manager at low level) are small. They provide empirical evidences[2] that the pay of divisional managers in the horizontal organization is lower than in comparable positions of the hierarchical organization, but

[1] In a different angle, the declining tenure of CEOs could explain the rise in CPS, assuming that the tenure of other executives was not changed. Hermalin (2005) argues that the current rise in CEO pay could be due to "tighter governance". CEO job becomes more risk (shorter tenure), so CEOs require higher wage in the bargaining. This might be an interesting question, but, unfortunately, it is hard to collect the data for the tenure of other executives.

[2] They use the survey data which is collected by Hewitt Associate, human resource consulting and outsourcing company. This data include the firm structure for more than 300 publicly traded U.S. firms over the years 1986-1998.

the pay differential is steeper to the top. They also look at the relationship between the organizational structure and CEO pay. The value of long-term incentives relative to salary and bonus for CEO is larger at the firms with a flattened organization by more than twice compared to that in the firms with a narrow organization. In this sense, the (relative) impact to the value of a firm or the (relative) span of control in the executive teams determined by the organization of a firm would influence the pay allocation in the executives. Related with the time trend in CPS, someone might argue that the rise in CPS can be explained by the tournament approach, which gives powerful incentive to lower-ranked executives. Top management team can be used as the battlefield to rise in corporate ladder to CEO. For this issue, we study the relationship among executive team structure, pay distribution, and the firms' strategy for CEO succession.

Our evidence shows that the intermediary[3] became less popular, but CFO becomes more popular as the 2nd-ranked position in the list of top-five executives. This finding is consistent with Zorn (2004). They find that the trend of the COO as the second in command is changed to appointment of CFO as the second in command in 1979-2000 period. Also, we find that while "CEO-Intermediary" duo (CEO is the first-ranked and the intermedairy is the second-ranked one without CFO in their top-five executives) decreased, "CEO-CFO" duo (CEO is the first-ranked and CFO is the second-ranked one without the intermediary) and "CEO-Intermediary-CFO" combination (CEO is the first-ranked, the intermedairy is the second-ranked one with CFO in their top-five executives) rised. All of three combinations are mutually exclusive, so this structual change implies that some firms newly hire CFO as one of the top-five executives or replace the intermediary to CFO as the second-highest paid executive. We can explain this in the following manner. On December 1950, the Celler-Kefauver Act is passed as a complement of the Clayton Antitrust Act of 1914. This act makes monopolistic merger and acquisition between corporates in related industry illegal. Thus, firms cotrived diversified, multidivisional enterprise which is called conglomerate in 1960s and in 1970s. During these periods, CEO needed a partner to help him as a special operator. COO, as a day-today operator, was needed to help CEO concentrate on the diversification strategy and became popular as a second commander in the corporate hierarchy. However, the firm recognized that overinvestment in diversification could cause the poor performance during 1980. Those caused that the firm used refocus starategy and CFO became popular for the investment-related task, but COO lost his popularity as a second commander. Additionally, the rise of the CFO position could be lead by the change of firm's legal environment[4] and as the solution of the shareholder value maximization (e.g., Zorn and Dobbin (2003), Zorn (2004)). For instance, Zorn (2004) points out that the reason of CFO rise since late 1970s is the need of adjusting their financial system under the new

[3] The intermediary includes Chief Operating Officer (COO) and Chief Administrative Officer (CAO). They are classified as an intermediary in a sense that they are usually the second highest in a firm and their span of control is as almost large as CEO.

[4] For example, the Federal Accounting Standards Board (FASB) Statement 33 in 1979 or the Sarbanes-Oxley (SOX) Act in 2002.

accounting law, the Federal Accounting Standards Board (FASB) Statement 33 in 1979. The CFO position is more likely to appear at the firms required to report under FASB 33 between 1979 and 1981. The trend keeps up with the antitrust reform by Reagan administration, the popularity of junk bond, and the need of specialist in investor relation.

Secondly, during 1993-2006, the CEO pay growth rate is 198%. In a meanwhile, the growth rate of the total top-five executives' compensation is 133% and that of the second-ranked one is 97%. Shortly speaking, the CEO pay grew faster than that of the second-highest-paid executive.[5] Closely related to this fact, we find that when COO (CFO) is a second-highest-paid executive, CEO is relatively less (more) valued in the executive teams. CPS decreases (increases) by 1.8% (2.5%) at the firms with COO (CFO) as the second. We could interpret that if the second-valued executive is CFO (not intermediary), CEO has a broader span of control.[6] Bennett and Miles (2006) argue that there are seven kinds of COO roles: performer of firm strategy, transitional manager, advisor for CEO, colleague for CEO, supplementary position for CEO, successor to the CEO, and extraordinary worker. Put simply, CEO and COO share the common task and the main role of COO is to supplement CEO's work. So, if COO is less valued in the firm (if COO is not a second-highest-paid executive), it implies that COO's span of control is being narrowed down, but CEO is becomming more powerful. In general, CFO do not replace COO, but specializes in the financial task. Our evidence indirectly shows the difference in the role of COO and CFO as the second in the hierarchy of a firm. The pay of the second-highest-paid intermediary is significantly higher than the pay of the second-highest-paid CFO.[7] This interpretation is closely related with Rajan and Wulf (2006). They show that the number of levels between the lowest managers (division heads) and the CEO has decreased, which suggests that the intermediary managers are being eliminated[8] and the CEO is contacting directly with more managers in the organization. Overall, the organization of firms in U.S. has been flattening and the span of CEO's control has been widening over time.

Finally, CFO as the second is not the powerful candidate for CEO, but COO as the second is the powerful candidate during 1993-2006, consistently. The proportion of CFO as the second internally promoting to CEO in total CEO sucessions is only 1.6%. Also, it increases by 0.7% from the first period (1993-1999) to the second period (2000~2006). In a mean while, the second-highest-paid intermediary is the powerful candidate of the CEO heir during 1993-2006. 37% of new CEOs are from the firm's intermediary position and 84.81% of them were second-highest-paid COO before promotion. This implies that the rise of CFO as the second is not related with the change in the firm's strategy for internal promotions, but the skill of CFO in accounting or finance being valued more in

[5] The CEO pay grew faster than that of third, fourth, and fifth one, too.

[6] It could be the case that CEO takes charge of the intermediary's task, which makes CEO deserve to receive more compensation for the more work.

[7] The average of the second-highest-paid intermediary's pay (2775.91 in 2000 year dollars (thousands)) is significantly higher than that of CFO (1868 in 2000 year dollars (thousands)) at 1% level.

[8] Our sample shows that COO's are not being eliminated in the list of top-five executives, but COO's are being less second-valued.

the market.

2 Prerequiste: Executive Hierarchy

In this paper, we study the relationship between the executive team structure and CPS. The marked features are the rise of the CFO position as the second and as a member of the top management team as well as the decline of the intermediary position as the second. To understand the change of the executive team structure, it is helpful to take a close look at the intermediary position and CFO position.

Intermediary Position

COO and CAO are considered to take an intermediary role. They are generally known to manage day-to-day firm operation and report directly to the CEO. However, it is difficult to specify the responsibility of those position in detail. Bennett and Miles (2006) argue that COOs are from lots of different background and there are seven kinds of COO roles.[9] To understand the responsibility of the intermediary position, we show the responsibility of the position at some firms in Table 1. We choose the firm having more than 12 year data in our sample. Then, we select the firms which are included in the S&P 500 of 2007. The number of firm is 438 and only 19 firms specify the intermediary position's responsibility at their webpage. The most frequently appeared responsibility is firm-wide operation. Additionally, they are responsible for strategic planning, marketing, management, and R&D.

[Insert Table 1]

Zorn and Dobbin (2003) argue that the rise of the COO position is due to the growth of the firm, diversification of the firm, and need for the short-term strategic commander in the 1970s. However, this trend is flagged in the beginning of the 1990s. With a little different angle, Hambrick and Cannella (2004) explain the emergence of CEO/COO duo by the point of the contingency theory. To test contigency perspective, they suggest three hypothesis - industry dynamism, organizational task demand and CEO limitation. "Industry dynamism" is about the industry growth rate, uncertainty, and the technology level. "Organizational task" is about diversification level, involvement in acquisition, and CEO duality. "CEO limitation" is about CEO's background and experience of firm wide task. In addition, they study the relationship between CEO/COO duo and firm performance. Overall, they find that when CEO also serves as a chairman, when CEO has too much task, when CEO has a finance or law background, when CEO is appointed from outside, and when CEO does not have enough firm-wide operation experience, the firm is more likely to have COO. They also find that the firm with COO leads to lower performance than without COO.

CFO Position

[9] The roles: performer of firm strategy, transitional manager, advisor for CEO, colleague for CEO, supplementary position for CEO, successor to the CEO, and extraordinary worker.

The responsibility of the CFO can be summarized in six; financial report, planning and strategy, treasury and tax, performance and risk management, internal audit, and investor relation.[10] The financial report is an indication of firms' financial status, which is one of the traditional tasks for CFO and CFO must certify quarterly and annual financial statements as well as take responsibility for their accuracy by SOX.[11] CFO needs to think about the resource allocation and performance measurement system as the market changes. Then, he needs to forecast the market and build a strategy to take the investment opportunity. CFO takes the treasurer's task in corporation and tax related work. CFO makes the firm's financial operation efficient based on the performance measurement and makes the risk profile[12] to let manager recognize it. CFO achieves intermal audit by auditing company's activities, records, properties, and employees to find any material errors, irregularities, or control weakness. For investor relation, CFO analyzes the effect of the company's financial related anouncement to the investors and decides how to release the information. Also, he must be able to explain about the data of corporate statement to the investor.

[Insert Table 2]

Table 2 shows the resposibility of the CFO position. The firms are drawn by the same method in Table 1 while 45 firms specify the CFO position responsibility. Except the above mentioned responsibilities, 6 firms indicate that CFO is responsible for merger and acquisition (M&A). Although there are common responsibilities between intermediary and CFO position, they still have mutually exclusive roles. Thus, it is difficult to say that those positions are "substitute" in responsibility. Zorn (2004) and Zorn and Dobbin (2003) argue that the rise of the CFO position is due to the regulatory change in corporate law and the rise of the financial market importance for the firm.[13] Mizurchi and Marquis (2006) argue that the increase of the CFO position since 1980 is associated to the internal and external corporate financial environment change. From the early 1970s, firms are less likely to hire the financial representative directors who are considered as a source of the higher level of financing. Then, firms needed to hire internal financial specialist, CFO, to replace the financial advisor which was a role of director from financial institute. During 1980, with merger wave, firms with undervalued stock became the target firms of the corporate raiders. It caused that the firms were more focused on the investor relation as well as on the faster financial decision. Those external environments affect to the rise of the CFO position.

[10] See Hope (2006), Favaro (2001), and Zorn (2004).

[11] It is stated in section 906 of Sarbanes-Oxley Act in 2002.

[12] Financial, information technology, operational, regulatory, reputational and strategic risks.

[13] Zorn (2004) find that the trend of the COO as the second in command is changed to appointment of CFO as the second in command in 1979-2000 period. And, Zorn and Dobbin (2003) show that CEO-CFO duo became popular in 1990s.

3 Data and Estimation

3.1 Data

To investigate the pay distribution, we collect top-five executive's pay of U.S. firms. The sample firms are drawn from the S&P primary index companies [14] included at least one year during 1993-2006. The total number of firms are 2790. By using TDC1,[15]we collect top-five executive's compensation data from ExecuCompu data set.[16] Then, we categorize the executives by titles.[17] Totally, we have seven categories: CEO, Intermediary, CFO, Chairman, President, Divisional Manager, and others.[18] Our main interest, however, is the first three positions: CEO, Intermediary, CFO. CEO is the highest executive in the organization of a firm.[19] The intermediary includes Chief Operating Officer (COO) and Chief Administrative Officer (CAO). They are classified as an intermediary in a sense that they are usually the second highest in a firm and their span of control is as almost large as CEO. CFO is the executive responsible for the financial operations of the firm.

[Insert Table 3 or Figure 1]

[Insert Table 4 or Figure 2]

Table 3 shows that "Intermediary" and "President"[20] tend to decrease, but CFO becomes more popular as the 2nd ranked position in the list of top-five executives. Table 4 sugests that CFO is more likely to be hired as a member of top-five executives, but the proportion of the intermediary position is not hugely changed in our sample period. This data support that the decline of the intermediary as the second is not because of the elimination of the intermediary from the top management team, but because of the rank change in the top executive team.

[Insert Table 5 or Figure 3]

Table 5 reports the change of the top executive team structure. Four combinations of position are mutually exclusive in each year. (1) CEO-INT: CEO is the highest-paid executive and intermediary is the second-highest-paid executive without CFO in the top five executives. (2) CEO-INT-CFO: CEO-INT duo with CFO in the top five executives.

[14] S&P primary index includes S&P 500, S&P Midcap 400, and S&P Smallcap 600. These 1500 firms can represent approximately 85% of the U.S. equity market.

[15] TDC1 includes salary, bonus, other annual compensation, long term incentive payouts, restricted stock granted, Black-Scholes value of stock-options granted and all other compensation.

[16] If a firm has less than five executives' pay data, we drop it in the observation year. If a firm has more than five executives' pay data, we only collect the five-highest-paid executives data based on TDC1.

[17] This categorization is based on a function defined by Rajan and Wulf (2006). They use 11 categories.

[18] Divisional manager includes the head of the business segment, of the resional segment, and of the group or subsidiary. Others includes Chief Information Officer, Chief Marketing Officer, Chief Technology Officer, Chief Legal Officer, Chief Credit Officer, and so on. Chief position contact with CEO directly, but their span of control is not as broad as the intermediary.

[19] We count only the firm that CEO is the highest-paid executive.

[20] The title "president" does not represent specific task and many firms abuse the title. Thus, we do not concentrate on the president position in this paper.

(3) CEO-CFO: CEO is the highest-paid executive and CFO is the second-highest-paid executive without intermediary in the top five executives. (4) CEO-CFO-INT: CEO-CFO duo with intermediary in the top five executives. While CEO-CFO and CEO-INT-CFO shows the significant increase during the sample period, CEO-INT shows the significant decrease.

[Insert Table 6 or Figure 4 & 5]

Next, we analyze the change of the executive compensation. In Table 6, Panel A reports the change of the top-five executives' compensation in each year. The executive team compensation increases during sample period, but it is not equally driven by the change of each executive's compensation. For instance, the CEO compensation is about twice of the second-ranked executive's pay in 1995. However, it is much higher than twice of the second-ranked executive's pay in 2006. In Panel B, during 1993-2006, while the growth rate of CEO pay is 198%, that of the total top-five executives' compensation is 133% and that of the second-ranked one is 97%. The rise of CEO pay is owing to both the increase in the total pay for executives and the rise of CEO's fraction. We can explain why the CEO pay grew faster than that of the second-highest executive by the change of a hierarchy in the firm. Our data shows the fall (rise) of the intermediary (CFO) as the second-highest-paid executive and the average of the second-highest-paid intermediary's pay (2775.91 in 2000 year dollars (thousands)) is significantly higher than that of CFO (1868 in 2000 year dollars (thousands)) at 1% level.

[Insert Table 7]

In Table 7, Panel A shows the change of the CPS in each year. The trend of increasing CPS is consistent with the Bebchuk, Cremers and Peyer (2007).[21] Also, the growth of the higher CPS (75-percentile) is faster than the growth of the lower CPS. The 75 percentile of the CPS rises by 14.82% during 1993-2006, compared to 8.52% of the 25 percentile of the CPS. In Panel B, we calculate the average CPS within different second-rank positions. We find that the CPS with intermediary (CFO) position as the second are significantly lower than the CPS with other position as the second. Table 8 shows how the CPS is correlated with the second-ranked top executive's title.

[Insert Table 8]

3.2 Estimation

3.2.1 Team Structual and CPS

To examine the relationship between CPS and firm executive structure, it is reasonable to control determinants of the CEO compensation. As control variables, we use CEO

[21] The average of our CPS is higher than Bebchuk, Cremers and Peyer (2007). The reason could be that we choose only the firm which CEO is the highest paid executive.

characteristics, shareholder rights, and firm characteristics. And, for the firm structure variables, we use Intermediary second dummy and CFO second dummy.

CEO characteristics CEO tenure is defined by the difference between the year the executive served as a CEO and the observation year. CEO age is the executive's age in the observation year. CEO as outsider is a dummy variable which equals to 1 if the year the executive served as a CEO and the year the executive joined the company are same. CEO as founder is a dummy variable which equals to 1 if the executive was a CEO five years before the firm was publicly traded. The year when the firm went to public is the first year when the firm's return data is on the database in the Center for Research in Security Prices (CRSP). CEO as chairman is the a dummy variable which equals to 1 if the CEO also serves as a chairman of the board. Since CEO characteristic variables are one year lagged variable, we only collect data for the CEO who has the same title in previous year.

CEO tenure and age can represent the expertise in the firm and how he is specialized in CEO's role in the firm. Older and longer tenure CEO can have a little outside opportunities, while younger and shorter tenure CEO can have a little experience and expertise on CEO's role. It is not clear to find the evidence that older and longer tenure CEO receives relatively higher compensation than other executives. However, the univariate analysis in Table 9 shows that the lower CPS is associated with the longer tenure CEO. CEO succession can be appointed to outsider of the firm in case when insider's quality is regarded to be too low. In such a case, CEO's pay might be relatively higher than the other executive. Murphy and Zabojnik (2004) and Murphy and Zabojnik (2007) find that CEO appointed from outside receives higher compensation than who is promoted internally. CEO, who is a founder and also a chairman of the board, can have more power in management team, which might lead to higher CPS. Our expectation for the CEO from outside and CEO as a chairman are supported by the univariate analysis in Table 9.

Shareholder Rights CEO ownership is the proportion of the CEO's share of the firm to the firm's total share. Executive team ownership except CEO is the proportion of the executive team's share other than CEO's to the firm's total share. Entrenchment index (E-index) is the discrete variable from 0 to 6, which higher number indicates the greater degree of the executives' entrenchment. Governance Index (G-index) is the discrete variable from 0 to 24, which higher number indicates the higher management power.[22] Blockholder ownership is the proportion of the blockholder's share to the firm's total share. Follwing Cremer and Nair (2005), blockholder is defined by the single institution which has at least 5% of the firm's share.

Large ownership of manager can alingn the interests between the shareholder and

[22] E-index and G-index are defined in Bebchuk, Cohen and Ferrell (2009) and in Gompers and Nicholson (2003). These variables has been updated in 1990, 1993, 1995, 1998, 200, 2002, 2004, and 2006. We used the last available value for each firm in each year.

manager, which can reduce the manager's incentive payment. It has long been debated that the managerial entrenchment of executive increases his compensation. Since our dependent variable is the proportion of the CEO compensation among the top mangement group, control of entrenchment will give us the insight about the relationship between entrenchment and compensation as well as the relative effect of CEO's compensation in top management entrenchment.[23] The priority responsibility and right of the shareholder is the monitoring of the firm operation. And, blockholder can be a efficient auditor of the firm, which can reduce agency cost in the firm.[24]

Firm characteristics Abnormal total compensation is the residual from the industry and year fixed effect regression of the log of total top five executives' compensation on the log of the book value of assets. Industry adjusted ROA is estimated by ROA minus the median value of each industry (SIC 2-digit) ROA and ROA is calculated by net income over book value of assets. Leverage is computed as long-term debt divided by the book value of assets. Firm size is estimated by the log of book value of assets. Firm value is defined by the industry adjusted Tobin's Q. Following Gompers and Nicholson (2003), Tobin's Q is calculated by the market value of common stock plus book value of assets minus book value of common stock and deferred taxes and industry adjusted Tobin's Q is computed as Tobin's Q minus industry median Tobin's Q.[25] Intermediary second dummy equals to 1 if the firm's second highest paid executive is COO or CAO. CFO second dummy equals to 1 if the firm's second highest paid executive is CFO.

Abnormal total compensation indicates how the executive team pay is high compared to the same industry firms in the same year. The relationsip between abnormal total compensation and CPS can be implied to the relative change of the CEO pie when the total pie changes. Industry adjusted ROA shows how the firm performance is better than the other firms in the same industry. And, the relationship between CPS and industry adjusted ROA can partly explain different pay-performance sensitivity between CEO and the other executives. The relationship between CPS and leverage can show the relative agency cost of debt in executive team. Also, if we think about the firm's financial decision and the span of control of each executive, CEO might have a relatively higher compensation than other executives in a highly leveraged firm.[26] Gabaix and Landier (2008) argue that the talent of CEO is not significantly distinguishable among firms, however, the huge difference among compensation is derived from the different firm size under his control. In this sense, relatively broader span of control executive, CEO, can have higher compensation among executives, and, we can expect that the gap between

[23]Managerial entrenchment is studied by Bebchuk and Fried (2003) and Bertrand and Mullainathan (2001).

[24]**?** analyze the relationship between CEO compensation and blockholder. They find that institutional blockholding concentration can reduce CEO compensation level.

[25]In Gompers and Nicholson (2003), they used 48 industry sectors from Fama and French (1997). However, I used 2-digit Standard Industrial Classification (SIC) code. Industry adjusted Tobin's Q can shows the value of the firm as well as the relative value in the same industry.

[26]If the debt is borrowed for the investment, the broader span of control executive will charge the higher responsibility for the debt. Thus, CPS and leverage might have a positive relationship.

compensation is greater in larger firm. However, BCP(2007) find that there is a negative relation between CPS and the firm value. Table 9 shows descriptive statistics.

[Insert Table 9, 10 and 11]

Table 10 and 11 report regression results. We regress CPS on the firm characteristics with structure variables, CEO characteristics and governance variables. When the intermediary position is a second-highest-paid executive, CPS decreases by 1.8%. However, when the CFO position is a second -highest-paid executive, CPS increases by 2.5%. With CEO characteristics, when CEO is taking chairman position and when CEO is from outside, CPS is higher. CPS is higher at the firms with greater abnormal total compensation, higher leverge, greater firm value, and greater firm size. With shareholder right, CPS is higher when executive's ownership is lower and when the management entrenchment (E-index) is stronger. In our regression, the results for the firm size and the abnormal total compensation are not consistent with Bebchuk, Cremers and Peyer (2007). It can be explained by the "return to scale" effect of the each executive. As Gabaix and Landier (2008) point out, the large firm size can magnify the talent of the executives. Put simply, when the size of a firm is 2 times larger, CEO "productivity" is multiplied by $2^{\gamma_{CEO}}$, but other executives (below CEO) "productivity" by 2^{γ_h}. Here, γ_{CEO} and γ_h represent the "return to scale" parameters of each executive. If γ_{CEO} is higher than γ_h, then CPS increases in the size of a firm. In other words, the executive with "higher return to scale" receives higher compensation, which can support higher CPS at bigger firms.

3.2.2 Heir Apparent Perspective

[Insert Table 12]

Table 12 shows the descriptive statistics for CEO successions. 1478 CEOs during 1993-2006 has been changed. Approximately 33% of the new CEOs are appointed from outside of the firm and 40% of the new CEOs are from the firm's intermediary position and CFO position. The second-highest-paid intermediary is the powerful candidate of the CEO heir during 1993-2006. The proportion of the intermediary as the second promoting to CEO in the total CEO successions is 31.3% (31.5% in the first period (1993-1999) and 31.2% in the second period (2000-2006)). However, the proportion of CFO as the second internally promoting to CEO in total CEO sucessions is only 1.6%. Also, it increases by 0.7% from the first period (1993-1999) to the second period (2000~2006). The change of the second-ranked position displayed in Table 3, the fall (rise) of COO (CFO) as the second, does not have an impact on the CEO heir apparent.[27]

[27] The heir apparent perspective cannot directly explain the change of the top executive structure. However, it shed light on the other aspect of the CEO succession. Bennett and Miles (2006) argue that COOs are from various background and their skills are acquired in the firm. However, CFOs usually have financial background such as degree in accounting (or finance), passing the Uniform Certified Public Accountant Examination to obtain Certified Public Accountant (CPA) title, or haveing a job experience in finance sector. Thus, CFOs have a more general skill, while COOs have a more firm-specific skill. From our data, the generalist (CFO) is getting popular in the top management team, but, the firms

4 Conclusion

In this paper, we study the structure and pay distribution in the executive team. We find that COO (CFO) became less (more) popular as the second in the top-five executives. Also, the growth rate of CEO pay is higher than that of a second-highest-paid one. During 1993-2006, while the CEO pay grew by 198%, that of the second-ranked one is 97%. Secondly, when COO (CFO) is a second-highest-paid one, CEO is relatively less (more) valued in the executive team. The CPS decreases (increases) by 1.8% (2.5%) at the firms with COO (CFO) as the second. The relative impact of CEO in the executive teams is being weaker (stronger) at the firms with COO (CFO) as the second because the main role of COO is to share the CEO's work. Overall, the change in the hierarchy of a firm can explain the rise of CPS over the past years. Finally, CFO as the second is not the powerful candidate for CEO. The proportion of CFO as the second internally promoting to CEO in total CEO sucessions is only 1.6%. Also, it increases by 0.7% from the first period (1993-1999) to the second period (2000~2006). This implies that the structual change in the hierarchy of a firm is not driven by the change in the strategy for the internal promotion.

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Table 1: Intermediary Position Responsibility

This table shows the responsibility of the intermediary position. We chose the firm which has more than 12 year data from the sample firm then we select the firm which is included in the S&P 500 in 2007. The number of firm is 438 and only 19 firms specify the intermediary position's responsibility in their webpage.

FIRM	Name and Position	RESPONSIBILITY
LINCOLN NATIONAL CORPORATION	CHARLES C. CORNELIO EXECUTIVE VICE PRESIDENT CHIEF ADMINISTRATIVE OFFICER	Most of the enterprise-wide functions in the organization and the supporting infrastructure of talent and systems including Shared Services, Information Technology, Strategic Initiatives and Brand, and Law.
EATON CORPORATION	CRAIG ARNOLD VICE CHAIRMAN CHIEF OPERATING OFFICER	Eaton's hydraulics, aerospace, filtration, truck, automotive and general products businesses.
ALLEGHENY ENERGY	CURTIS H. DAVIS CHIEF OPERATING OFFICER	Operation of 20 primarily coal-fired power plants, the marketing of their 9,700 megawatts of generating capacity, and the construction associated with Allegheny's $2-billion environmental improvement initiative.
EMERSON ELECTRIC COMPANY	EDWARD L. MONSER CHIEF OPERATING OFFICER	Day-to-day business operations, global supply chain and international business activities, which includes business development, investments, and strategic planning
MYLAN INC	HEATHER BRESCH EXECUTIVE VICE PRESIDENT CHIEF OPERATING OFFICER	Global commercial and technical operations, strategic planning, business development, international affairs, and the integration of Mylan's recent acquisition of Merck Generics.
BROWN-FORMAN CORPORATION	JAMES L. BAREUTHER EXECUTIVE VICE PRESIDENT CHIEF OPERATING OFFICER	Day-to-day operations of Brown-Forman's spirits and wine business across the globe
TECO ENERGY, INC	JOHN B. RAMIL PRESIDENT CHIEF OPERATING OFFICER	TECO Energy's four operating companies
BRISTOL-MYERS SQUIBB	LAMBERTO ANDREOTTI PRESIDENT CHIEF OPERATING OFFICER	Bristol-Myers Squibb's pharmaceutical operations worldwide, including Technical Operations and Global Marketing.
LOWE'S COMPANIES, INC	LARRY STONE PRESIDENT CHIEF OPERATING OFFICER	Store operations, merchandising, marketing, logistics and distribution, and Lowe's Canadian operations.
CLOROX COMPANY	LAWRENCE S. PEIROS EXECUTIVE VICE PRESIDENT CHIEF OPERATING OFFICER	Marketing, Sales, Research & Development and Product Supply functions.
SUPERVALU INC	MICHAEL JACKSON PRESIDENT CHIEF OPERATING OFFICER	Implementing the company's strategic vision, as well as for overseeing the company's Retail East operations, which include Acme, Farm Fresh, Shaw's, and Shoppers. He also oversees the company's Save-A-Lot business and the Six Sigma function
SEMPRA ENERGY	NEAL E. SCHMALE PRESIDENT CHIEF OPERATING OFFICER	Implementing Sempra Energy's growth strategy and overseeing overall management of the Sempra Energy companies.
EASTMAN CHEMICAL COMPANY	NORRIS P. SNEED SENIOR VICE PRESIDENT CHIEF ADMINISTRATIVE OFFICER	Human Resources, Communications and Public Affairs and Information Technology
MCDONALD'S CORPORATION	RALPH ALVAREZ PRESIDENT CHIEF OPERATING OFFICER	Setting the global strategy and directs operations for the nearly 32,000 McDonald's restaurants in 118 countries. He leads the worldwide senior management team as they drive business results to create value for McDonald's and its shareholders.
E. I. DU PONT DE NEMOURS AND COMPANY	RICHARD R. GOODMANSON EXECUTIVE VICE PRESIDENT CHIEF OPERATING OFFICER	Leadership of the Coatings & Color Technologies and Performance Materials platforms, and the Operations, Engineering & Facilities, Sourcing & Logistics and Information Technology functions. He also leads a major cross-company transformation productivity program
TEXTRON INC	SCOTT C. DONNELLY PRESIDENT CHIEF OPERATING OFFICER	Overseeing Textron's business units, the corporation's Mergers and Acquisitions, Information Technology, Six Sigma, Engineering, and Global Sourcing functions

SOUTHERN COMPANY	THOMAS A. FANNING EXECUTIVE VICE PRESIDENT CHIEF OPERATING OFFICER	Southern Company Generation – which includes non-nuclear generating facilities and environmental affairs – Southern Power, and Southern Company transmission. He remains responsible for corporate strategy
PPL CORPORATION	WILLIAM H. SPENCE EXECUTIVE VICE PRESIDENT CHIEF OPERATING OFFICER	Overseeing the day-to-day operations of PPL’s generating and marketing operations, its electricity delivery businesses in Pennsylvania and outside the United States and its nuclear development function
MARRIOTT INTERNATIONAL, INC	WILLIAM J. SHAW PRESIDENT CHIEF OPERATING OFFICER	All of Marriott's Lodging, as well as business information systems and technology, architecture and construction, strategic planning and corporate human resources

Table 2: CFO Position Responsibility

This table shows the responsibility of the CFO position. We chose the firm which has more than 12 year data from the sample firm then we select the firm which is included in the S&P 500 in 2007. The number of firm is 438 and only 45 firms specify the intermediary position's responsibility in their webpage.

FIRM	NAME AND POSITION	RESPONSIBILITY
MARRIOTT INTERNATIONAL, INC	ARNE M. SORENSON EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Company's finance, treasury and financial planning and analysis functions
TRIBUNE COMPANY	CHANDLER BIGELOW CHIEF FINANCIAL OFFICER	Overseeing all corporate finance functions, including financial reporting, tax, audit, treasury and real estate.
CAMPBELL SOUP COMPANY	CRAIG OWENS SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Controller, Treasury, Corporate Development, Tax, Real Estate, Corporate Audit, Investor Relations, Global Supply Chain, and IT departments.
FLUOR CORPORATION	D. MICHAEL STEUERT SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Implementing successful global financial processes and improvements
CLOROX COMPANY	DANIEL J. HEINRICH SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Clorox's financial activities, including Finance, Accounting, Reporting, Internal Controls, Treasury, Tax and Investor Relations. In addition, he oversees the company's Corporate Administrative Services, Corporate Real Estate and Information Services functions
RAYTHEON COMPANY	DAVID C.WAJSGRAS SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Financial reporting and controls, merger and acquisition activity, planning and analysis, investor relations, tax and treasury.
STRYKER CORPORATION	DEAN BERGY VICE PRESIDENT CHIEF FINANCIAL OFFICER	Company's accounting, finance, tax and information technology functions.
ITT CORPORATION	DENISE RAMOS SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	All aspects of financial management and reporting for the global multi-industry company, as well as communication to the investment community. As a member of the company's Strategic Council, Ramos also helps set the company's strategic direction.
JOHNSON & JOHNSON	DOMINIC J. CARUSO VICE PRESIDENT CHIEF FINANCIAL OFFICER	Financial and investor relations activities
ALLSTATE CORPORATION	DON CIVGINSENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Aligning Allstate's finance and capital structures to the corporation's business strategies
HUNTINGTON BANCSHARES INC	DONALD R. KIMBLE EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Accounting, tax, financial planning & analysis, investor relations, treasury and mergers and acquisitions.
PFIZER INCORPORATED	FRANK D'AMELIO CHIEF FINANCIAL OFFICER	Integration of the combined Alcatel-Lucent, in addition to the supply chain, information technology, real estate, marketing, legal and U.S. labor relations operations of the company.
LINCOLN NATIONAL CORPORATION	FREDERICK J. CRAWFORD EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Financial reporting, tax, treasury, internal audit, investor relations and enterprise risk management. He is also responsible for mergers and acquisitions
MEDTRONIC, INC	GARY ELLIS SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Treasury, tax, controllership, internal audit, and investor relations functions at Medtronic
CENTERPOINT ENERGY	GARY WHITLOCK EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Accounting, treasury, risk management, tax, strategic planning, business development, emerging businesses, investor relations and information technology.
MCCORMICK & COMPANY	GORDON STETZ EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Controllership, financial accounting and reporting, tax, treasury, mergers and acquisitions, financial planning and analysis, internal audit and Financial Shared Services
NORTHROP GRUMMAN CORPORATION	JAMES F. PALMER VICE PRESIDENT CHIEF FINANCIAL OFFICER	Company's overall business management function and activities including the controller; treasury; contracts, pricing and supply chain; financial planning; tax; internal audit; investor relations; and trust administration and investments
TIFFANY & CO.	JAMES N. FERNANDEZ	Accounting, treasury, investor relations, information

	EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	technology, financial planning, financial services, business development, diamond operations, real estate operations and overall responsibility for distribution, manufacturing, customer service and security
BRISTOL-MYERS SQUIBB	JEAN-MARC HUET EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Company's worldwide finance operations, including Tax, Treasury, Control, Investor Relations, Internal Audit and Financial Shared Services
PRAXAIR, INC	JIM SAWYER EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Finance, audit, treasury, accounting, tax, information technology and investor relations functions.
TEXAS INSTRUMENTS	KEVIN P. MARCH SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Finance, operations, marketing, and general business management across TI’s corporate and business operations, including a wide range of TI’s Semiconductor businesses as well as its former defense business
ASHLAND INC	LAMAR M. CHAMBERS SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Overseeing Ashland's worldwide financial functions and processes, including financial accounting and reporting, treasury and finance, insurance, business development, planning and analysis, investor relations, tax and internal audit activities
EQUIFAX INC	LEE ADREAN CORPORATE VICE PRESIDENT CHIEF FINANCIAL OFFICER	All financial functions including Accounting, Audit, Treasury, Corporate Finance and Investor Relations.
KIMBERLY-CLARK CORPORATION	MARK A. BUTHMAN SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Finance, Accounting, Real Estate, Investor Relations, and Information Technology Services
DEERE & COMPANY	MICHAEL J. MACK, JR. SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Advising the chairman and division presidents on major financial and strategic growth issues, and managing Deere & Company's worldwide financial and planning functions. In his position, he is also responsible for business planning and development, and investor communications.
PITNEY BOWES INC	MICHAEL MONAHAN EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Financial operations of the company on a global basis. This includes treasury, audit, investor relations, corporate development, tax functions and driving results with the business units.
CIGNA CORPORATION	MICHAEL W. BELL EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	All financial operations and functions, Investment Management, Strategic Planning, and management of run—off businesses
SUPERVALU INC	PAMELA KNOUS EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Finance, information technology, investor relations
MCDONALD'S CORPORATION	PETER J. BENSEN EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	All financial matters for McDonald’s, including Accounting, Internal Audit and Controls, Facilities, Tax, Treasury and Investor Relations.
UST INC	RAYMOND P. SILCOCK SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Accounting and financial reporting; subsidiary finance; tax; treasury; and financial strategy
NICOR, INC	RICHARD L. HAWLEY EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Finance, accounting, treasury, investor relations, risk management and information technology activities
INTERNATIONAL FLAVORS AND FRAGRANCES	RICHARD A. O'LEARY INTERIM CHIEF FINANCIAL OFFICER	Overseeing IFF’s global finance function, which includes internal and external financial reporting, as well as the accounting, tax and treasury groups.
AT&T INC	RICHARD G. LINDNER SENIOR EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Financial planning, accounting, tax, auditing, investment management, financing and investor and shareowner relations for AT&T
EATON CORPORATION	RICHARD H. FEARON VICE CHAIRMAN CHIEF FINANCIAL AND PLANNING OFFICER	Accounting, control, corporate development, information systems, internal audit, investor relations, strategic planning, tax and treasury functions.
ALLEGHENY TECHNOLOGIES, INC	RICHARD J. HARSHMAN EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Accounting, financial, treasury, tax, and internal audit functions and for investor relations.
PNC FINANCIAL SERVICES	RICHARD J. JOHNSON CHIEF FINANCIAL OFFICER	Managing the finance functions including the business chief financial officers, performance measurement, the controller function, tax, Sarbanes-Oxley, investor relations, and mergers

		and acquisitions.
TEXTRON INC	RICHARD L. YATES ACTING CHIEF FINANCIAL OFFICER SENIOR VICE PRESIDENT AND CORPORATE CONTROLLER	Finance, treasury, tax, audit, and risk management operations in addition to his corporate controller responsibilities, which include management of external and internal accounting, financial reporting, and financial planning and analysis
LOWE'S COMPANIES, INC	ROBERT F. HULL, JR. EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Accounting, tax, treasury, investor relations, procurement and financial planning and analysis
MCGRAW-HILL COMPANIES, INC	ROBERT J. BAHASH EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Managing the corporate-wide use of information technology, including the strategic direction of the corporation's electronic commerce strategy, Investor Relations and the Corporation's centralized manufacturing operations.
VF CORPORATION	ROBERT K. SHEARER SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Financial operations of VF, its operating units around the world, VF's Mergers & Acquisitions, Global Business Technology, and Corporate Travel groups.
DOW JONES & COMPANY	STEPHEN DAINTITH CHIEF FINANCIAL OFFICER	All finance functions, including business unit finance, corporate accounting, general accounting, credit, internal audit and tax, as well as corporate technology and general services.
E.W. SCRIPPS COMPANY	TIMOTHY E. STAUTBERG SENIOR VICE PRESIDENT CHIEF FINANCIAL OFFICER	Overseeing the company’s accounting, treasury, tax, risk management, investor relations, and information technology functions.
BANK OF NEW YORK MELLON CORPORATION	TODD GIBBONS CHIEF FINANCIAL OFFICER	Controller, treasury, investor relations, strategic planning, corporate development and tax functions of The Bank of New York Mellon, as well as its leasing businesses.
WAL-MART STORES, INC	TOM SCHOEWE EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Treasury, tax, accounting and control, business planning and analysis, internal auditing, and several other key areas of the company
AMEREN CORPORATION	WARNER BAXTER EXECUTIVE VICE PRESIDENT CHIEF FINANCIAL OFFICER	Overseeing Ameren’s finance functions, its corporate and strategic planning activities, and those organizations providing technology, procurement, environmental and certain other services to the business segments.

Table 3: The 2nd ranked position in the top-five executives

This table displays the proportion of the 2nd ranked position in the top-five executives' compensation. In second column, Intermediary position means either COO (Chief Operating Officer) or CAO (Chief Administrative Officer). In third column, CFO indicates a Chief Financial Officer. In forth column, President indicates that executive's title is president who does not have the chief positions as well as the divisional manager. In fifth column, the position indicates the person whose title is related to the division, group, or subsidiary of the firm. I also calculate proportion for the chairman, however, the position is such a small proportion that I do not report here. The sixth column shows the other executives who are not in the previous categories. The last column shows the number of observations (firm). The data is based on the firms which have been included in S&P primary index – S&P 500, S&P Midcap 400, and S&P Smallcap 600- at least one year during 1993-2006. I use ExecuComp data during 1993-2006 and collect the each executive's title and TDC1 which includes salary, bonus, other annual compensation, long term incentive payouts, restricted stock granted, Black-Scholes value of stock-options granted and all other compensation. If there are more than five executives, I collect only the five highest paid executives. The rank of the compensation is based on the TDC1.

Year	Intermediary	CFO	President	Division Group Subsidiary	Others	Obs
1993	29.73%	9.47%	33.13%	17.72%	0.73%	824
1994	28.72%	10.32%	34.14%	17.71%	1.38%	1163
1995	27.87%	11.15%	33.78%	18.83%	0.84%	1184
1996	27.51%	13.01%	34.02%	15.82%	1.40%	1214
1997	28.75%	13.92%	30.82%	16.24%	2.07%	1207
1998	28.90%	13.56%	32.14%	17.05%	1.54%	1232
1999	27.49%	15.49%	31.79%	15.98%	1.78%	1233
2000	23.83%	16.83%	32.61%	17.23%	2.42%	1242
2001	24.22%	19.05%	27.07%	19.66%	2.93%	1160
2002	25.89%	19.29%	27.29%	18.71%	3.54%	1213
2003	24.60%	19.94%	27.29%	19.38%	2.93%	1264
2004	23.87%	21.98%	26.40%	19.21%	3.32%	1265
2005	23.22%	22.43%	27.22%	17.73%	4.31%	1275
2006	21.94%	22.93%	26.46%	18.82%	4.03%	1217
Total	26.07%	16.61%	30.20%	17.86%	2.43%	16693

Table 4: The existence of the intermediary position and of the CFO position in the list of top-five executives

This table shows the proportion of the intermediary position and of the CFO position in top-five executives in each year. Intermediary position means either COO (Chief Operating Officer) or CAO (Chief Administrative Officer). CFO indicates a Chief Financial Officer. The last column shows the number of observations (firm). See Table 3 for description of sample firm.

Year	Intermediary	CFO	Obs
1993	37.14%	49.64%	824
1994	35.68%	53.05%	1163
1995	35.98%	55.66%	1184
1996	34.68%	57.99%	1214
1997	36.45%	61.23%	1207
1998	37.99%	62.42%	1232
1999	36.66%	63.75%	1233
2000	33.57%	68.12%	1242
2001	35.78%	70.78%	1160
2002	35.70%	73.12%	1213
2003	35.68%	76.11%	1264
2004	35.10%	77.79%	1265
2005	34.12%	78.51%	1275
2006	35.09%	89.65%	1217
Total	35.64%	67.54%	16693

Table 5: Top Executive Team Structure

This table shows the proportion of the firm structure with CEO, Intermediary position (COO and CAO), and CFO. Second column shows the firm that CEO is the first rank and intermediary position is the second rank in their compensation without CFO position in their top five executives. Third column shows the firm that CEO is the first rank and CFO is the second rank in their compensation without intermediary position in their top five executives. Fourth column shows the firm that CEO is the first rank and intermediary position is the second rank in their compensation with CFO position in their top five executives. And, the last column shows the firm that CEO is the first rank and CFO is the second rank in their compensation with intermediary position in their top five executives. INT means intermediary position. See Table 3 for description of sample firm.

Year	CEO - INT	CEO - CFO	CEO - INT - CFO	CEO - CFO - INT
1993	15.17%	8.25%	14.56%	1.21%
1994	14.62%	9.29%	14.10%	1.03%
1995	13.18%	9.63%	14.70%	1.52%
1996	14.17%	11.29%	13.34%	1.73%
1997	12.01%	12.43%	16.74%	1.49%
1998	11.61%	11.44%	17.29%	2.11%
1999	10.87%	12.90%	16.63%	2.60%
2000	8.62%	13.61%	15.22%	3.22%
2001	8.36%	16.12%	15.86%	2.93%
2002	9.23%	16.90%	16.65%	2.39%
2003	7.04%	17.25%	17.56%	2.69%
2004	7.27%	18.26%	16.60%	3.72%
2005	6.98%	19.22%	16.24%	3.22%
2006	3.04%	19.31%	18.90%	3.62%
Total	9.99%	14.18%	16.08%	2.43%

Table 6: Top-five Executives compensation

Panel A shows the average value of the top-five executives' compensation in each year. Second column indicates the mean of the total top-five executives' compensation. Third column shows the mean of the CEO compensation in each year. Fourth, fifth, sixth, and seventh column shows the mean compensation of the each rank's executive. The compensation is based on TDC1 which includes salary, bonus, other annual compensation, long term incentive payouts, restricted stock granted, Black-Scholes value of stock-options granted and all other compensation. All values are adjusted for inflation by using GDP deflator and in 2000 dollars (Thousands). Panel B reports the growth of the each rank's compensation. Each value shows the percentage change in each period. The value is calculated by (mean compensation in end year – mean compensation in beginning year)/mean compensation in beginning year. See Table 3 for description of sample firm.

Panel A: Average value of compensation

Year	Total	1st - CEO	2nd	3rd	4th	5th
1993	6208.806	2434.836	1314.318	985.0689	801.8251	672.7587
1994	6460.696	2659.181	1363.895	991.4028	800.3734	645.8449
1995	6788.582	2829.61	1468.553	1027.399	808.9742	654.0458
1996	8631.331	3814.819	1789.124	1246.876	990.7709	789.7401
1997	10345.53	4548.781	2180.481	1515.903	1174.593	925.7696
1998	11754.17	5428.794	2522.462	1664.754	1183.139	955.0191
1999	13455.12	6176.165	2792.761	1900.363	1430.965	1154.866
2000	15875.69	7355.558	3160.13	2182.687	1804.355	1372.963
2001	15022.56	6949.539	3056.156	2072.641	1635.537	1308.684
2002	11620.85	5288.689	2325.31	1657.248	1301.823	1047.777
2003	10994.72	4819.538	2218.529	1605.483	1298.565	1052.605
2004	12036.26	5309.493	2381.24	1757.758	1422.236	1165.535
2005	12157.84	5394.464	2409.727	1769.794	1428.226	1155.633
2006	14486.14	7263.132	2589.192	1912.881	1514.607	1206.323

Panel B: Growth Rate of the Each Rank's compensation

Duration	Total	1st - CEO	2nd	3rd	4th	5th
1993-1999	116.71%	153.66%	112.49%	92.92%	78.46%	71.66%
1993-2006	133.32%	198.30%	97.00%	94.19%	88.89%	79.31%

Table 7: Descriptive statistics for CPS

Panel A shows the number of the observation (N), mean, standard deviation (SD), 25 percentile, and 75 percentile of the CPS. CPS is the ratio of the CEO compensation to the total top-five executive compensation. Executive compensation is based on TDC1 which includes salary, bonus, other annual compensation, long term incentive payouts, restricted stock granted, Black-Scholes value of stock-options granted and all other compensation. The data is collected from ExecuComp. Panel B reports the average CPS of the firm with intermediary position and CFO position as a second ranked executive in the top-five. The third column shows the average CPS of the firm where intermediary position is not the second ranked executive and *, **, and *** indicate significance of difference with second column at the 10%, 5% and 1% level. The fifth column indicates the average CPS of the firm where CFO position is not the second ranked executive and *, **, and *** indicate significance of difference with fourth column at the 10%, 5% and 1% level. The significant test is performed by using t tests on the equality of means. See Table 3 for description of sample firm.

Panel A: Simple statistics for CPS					
Year	Obs	Mean	SD	25 - percentile	75 – percentile
1993	824	37.51	8.56	32.28	40.43
1994	1163	38.55	9.34	32.55	41.81
1995	1184	38.49	9.25	32.32	41.91
1996	1214	39.67	9.97	33.43	43.84
1997	1207	40.15	9.98	33.58	44.34
1998	1232	40.67	10.68	33.58	45.26
1999	1233	41.30	10.80	33.87	45.67
2000	1242	41.60	11.02	33.89	46.75
2001	1160	42.24	10.90	34.80	47.38
2002	1213	41.74	10.46	34.42	47.27
2003	1264	41.26	9.70	34.67	46.30
2004	1265	41.82	9.92	35.11	46.93
2005	1275	42.25	10.12	35.13	47.33
2006	1217	41.89	9.94	35.03	46.42
Total	16693	40.75	10.20	33.81	45.49

Panel B : Comparing CPS with Different Second Rank Position				
Year	2nd ranked executive is an intermediary	Otherwise (Intermediary)	2nd ranked executive is a CFO	Otherwise (CFO)
1993	36.68	37.87**	40.38	37.21***
1994	37.64	38.92**	40.67	38.31***
1995	38.01	38.68	41.16	38.16***
1996	38.92	39.95*	42.31	39.27***
1997	39.38	40.45**	40.36	40.11
1998	39.53	41.13***	43.02	40.30***
1999	40.57	41.58*	43.36	40.92***
2000	40.70	41.88*	44.10	41.09***
2001	41.44	42.49*	43.36	41.98**
2002	40.60	42.14**	43.71	41.27***
2003	40.09	41.64***	42.55	40.94***
2004	40.30	42.30***	44.37	41.10***
2005	41.21	42.56**	44.47	41.61***
2006	40.74	42.22**	43.73	41.35***
Total	39.69	41.12***	43.06	40.29***

Table 8: Relationship between CPS and 2nd ranked executives in the top-five

This table shows the pairwise correlation coefficients between the CPS and the executives' position. Each position is assigned by executive's title in ExecuComp data. If there are more than two positions for one executive, we assigned the executive to the only one position under the order, such that CEO – COO – CAO – CFO – Divisional manager – President – Chairman – Others. For example, if one executive's titles are vice president and CFO, then this executive is assigned to CFO. CPS is the ratio of the CEO compensation to the total top-five executive compensation in each year. Executive compensation is based on TDC1 which includes salary, bonus, other annual compensation, long term incentive payouts, restricted stock granted, Black-Scholes value of stock-options granted and all other compensation. The data is collected from ExecuComp. Intermediary, CFO, President, DM (Divisional Manager), and others are the binary variables depending on the second rank executive's title. *, **, and *** indicate significance level of each correlation coefficient at the 10%, 5% and 1%, respectively. See Table 3 for description of sample firm.

	CPS	Intermediary	CFO	President	DM	Others
CPS	1					
Intermediary	-0.0612***	1				
CFO	0.1012***	-0.2606***	1			
President	0.0066	-0.3867***	-0.2820***	1		
DM	-0.002	-0.2762***	-0.2073***	-0.3054***	1	
Others	0.0087	-0.0919***	-0.0662***	-0.1003***	-0.0735***	1

Table 9: Statistics for Firm Characteristics

This table shows the sample statistics for the firm characteristics. The first four columns show the median, mean, standard deviation (SD), and number of observation. Column six and seven show the mean value of High CPS and Low CPS, respectively. High CPS and Low CPS are assigned by greater and smaller value than median CPS. The last column indicates the p-value of the mean difference between values in column six and seven. The significant test is performed by using t test on the equality of means. See Table 1 for description of sample firm. CEO Tenure is the difference between the observed year and year became CEO. CEO Age is the age of each CEO. CEO from Outside is assigned 1 if the date joined company and the date became CEO are same, and 0 otherwise. Founder CEO becomes 1 if the CEO was holding the position 5 year before the firm went to the public. The date of going public is defined by the date when the firm has the first CRSP return data. If CEO serves as a board chairperson, CEO Duality dummy equals to 1. CEO Ownership shows the percentage of shares CEO owns. Other Top Executive Ownership is the percentage of shares non-CEO executives own. E-index is the entrenchment index from Bebchuk et al. (2004). G-index is the governance index from Gomper et al. (2003). Blockholder Shares indicates the percentage of shares owned by the blockholders. The blockholders are institutions which hold at least 5% of the firm's total share. Abnormal Total Compensation is the residual from the industry and year fixed effect regression of the log of total top five executives' compensation on the log of the book value of assets. Industry adjusted ROA is calculated by ROA minus the median value of each industry (SIC 2-digit) ROA. ROA is the return on asset calculated by net income divided by book value of assets. Leverage is computed as long-term debt divided by the book value of assets. Firm size is measured by log of book value of assets. Industry Adjusted Tobin's Q is computed as Tobin's Q minus median value of each industry (SIC 2-digit) Tobin's Q. Tobin's Q is calculated by the market value of common stock plus book value of assets minus book value of common stock and deferred taxes. Firm characteristic data are one-year lagged values, thus, the firm data are from 1992 to 2005.

Variables	Median	Mean	SD	Obs	High CPS	Low CPS	p-value
CEO Tenure	5	7.488	6.966	12,973	7.330	7.653	0.004
CEO Age	55	55.189	7.025	13,601	55.237	55.139	0.209
CEO from Outside	0	0.328	0.469	7,509	0.343	0.311	0.002
Founder CEO	0	0.086	0.281	13,310	0.074	0.098	0.000
CEO Duality	1	0.659	0.474	13,990	0.704	0.613	0.000
CEO Ownership (%)	0.276	2.050	5.550	13,395	1.729	2.377	0.000
Other Top Executive Ownership (%)	0.169	1.017	3.677	13,135	0.696	1.345	0.000
E-index	2	2.252	1.298	12,511	2.347	2.150	0.000
G-index	9	9.455	2.668	12,511	9.641	9.255	0.000
Blockholder Shares (%)	12.652	14.627	12.832	13,859	14.879	14.372	0.010
Abnormal Total Compensation	-0.033	0.000	0.735	16,667	0.165	-0.165	0.000
Industry Adjusted ROA	0	-0.008	0.096	16620	-0.007	-0.009	0.032
Leverage	0.174	0.195	0.173	16,613	0.198	0.191	0.004
Firm Size	7.360	7.503	1.725	16,667	7.689	7.318	0.000
Industry Adjusted Tobin's Q	0	0.312	1.217	14,063	0.335	0.290	0.014

Table 10: Regression Result with Industry Fixed Effects

This table shows the result of the industry and year fixed effects regression. For the industry effects, we used 2-digit SIC code. The dependent variable is CPS, the ratio of the CEO compensation to the total top-five executive compensation. CEO Age under 50 is the dummy variable which is equal to 1 if CEO is younger than 50. CEO age over 65 is the dummy variable which is equal to 1 if CEO is older than 65. Intermediary Second Dummy equals to 1, if the intermediary position (COO or CAO) takes the second highest ranked in the top-five executives' compensation. CFO Second Dummy equals to 1, if the CFO position takes the second highest ranked in the top-five executives' compensation. See Table 9 for description of other variables. *, **, and *** indicate significance at the 10%, 5% and 1% level, respectively. T-statistics are in parentheses.

Dependent Variable: CPS	(1)	(2)	(3)	(4)
CEO Tenure	-0.000	-0.002	0.011	0.006
	(-0.01)	(-0.15)	(0.54)	(0.29)
CEO Duality	1.537^{***}	1.296^{***}	1.695^{***}	1.490^{***}
	(7.89)	(6.73)	(7.13)	(6.34)
CEO Age < 50	-0.427	-0.446^{*}	-0.286	-0.335
	(-1.93)	(-2.02)	(-1.04)	(-1.22)
CEO Age > 65	-0.961^{*}	-0.948^{*}	-0.769	-0.704
	(-2.35)	(-2.32)	(-1.57)	(-1.45)
CEO Age Missing	0.121	0.084	0.372	0.335
	(0.16)	(0.11)	(0.37)	(0.33)
CEO from Outside	0.670^{**}	0.682^{**}	1.205^{***}	1.231^{***}
	(2.68)	(2.74)	(3.98)	(4.08)
CEO from Outside Missing	0.475^{*}	0.491^{*}	0.679^{**}	0.684^{**}
	(2.45)	(2.54)	(2.94)	(2.96)
Founder CEO	-0.166	-0.064	0.493	0.642
	(-0.46)	(-0.18)	(0.94)	(1.22)
CEO Ownership			-0.062^{*}	-0.057^{*}
			(-2.51)	(-2.35)
Other Top Executive Ownership			-0.158^{***}	-0.145^{***}
			(-4.85)	(-4.45)
E-index			0.283^{***}	0.287^{***}
			(3.42)	(3.48)
Blockholder Shares			-0.010	-0.008
			(-1.16)	(-0.89)
Abnormal Total Compensation	6.107^{***}	6.053^{***}	6.125^{***}	6.088^{***}
	(41.11)	(40.85)	(32.70)	(32.61)
Industry Adjusted ROA	-0.237	-0.143	0.590	0.607
	(-0.26)	(-0.16)	(0.44)	(0.46)
Leverage	3.217^{***}	2.979^{***}	3.257^{***}	2.850^{***}
	(5.69)	(5.28)	(4.50)	(3.95)
Industry Adjusted Tobin's Q	-0.681^{***}	-0.656^{***}	-0.688^{***}	-0.653^{***}
	(-8.57)	(-8.26)	(-6.52)	(-6.19)
Firm Size	0.689^{***}	0.735^{***}	0.529^{***}	0.583^{***}
	(10.68)	(11.41)	(6.39)	(7.05)
Intermediary Second Dummy	-1.802^{***}		-1.714^{***}	
	(-9.31)		(-7.37)	
CFO Second Dummy		2.447^{***}		2.579^{***}
		(10.91)		(9.64)
year1994	1.017	0.929	2.023	1.885
	(1.12)	(1.02)	(1.64)	(1.53)
year1995	1.301	1.242	2.091	1.971
	(1.46)	(1.39)	(1.72)	(1.63)
year1996	2.318^{**}	2.200^{*}	3.358^{**}	3.198^{**}
	(2.60)	(2.47)	(2.78)	(2.65)

year1997	2.681**	2.545**	3.691**	3.576**
	(2.98)	(2.83)	(3.01)	(2.92)
year1998	3.257***	3.095***	4.610***	4.427***
	(3.62)	(3.45)	(3.76)	(3.62)
year1999	3.806***	3.595***	4.604***	4.394***
	(4.23)	(4.00)	(3.81)	(3.64)
year2000	4.300***	4.140***	5.088***	4.926***
	(4.78)	(4.60)	(4.19)	(4.07)
year2001	4.402***	4.196***	5.221***	5.039***
	(4.89)	(4.67)	(4.32)	(4.18)
year2002	4.039***	3.801***	5.361***	5.109***
	(4.51)	(4.25)	(4.45)	(4.25)
year2003	3.195***	2.943***	4.139***	3.870**
	(3.58)	(3.30)	(3.46)	(3.25)
year2004	3.928***	3.604***	5.097***	4.741***
	(4.40)	(4.04)	(4.26)	(3.98)
year2005	4.450***	4.134***	5.348***	5.029***
	(4.97)	(4.62)	(4.47)	(4.22)
year2006	4.038***	3.722***	4.932***	4.590***
	(4.51)	(4.16)	(4.12)	(3.84)
Constant	30.921***	30.073***	30.480***	29.559***
	(30.77)	(29.95)	(22.03)	(21.42)
Observations	10984	10984	7401	7401
Number of Industry	64	64	62	62
R-squared	0.181	0.184	0.187	0.191

Table 11: Regression Result with Firm Fixed Effects

This table shows the result of the firm and year fixed effects regression. The dependent variable is CPS, the ratio of the CEO compensation to the total top-five executive compensation. CEO Age under 50 is the dummy variable which is equal to 1 if CEO is younger than 50. CEO age over 65 is the dummy variable which is equal to 1 if CEO is older than 65. Intermediary Second Dummy equals to 1, if the intermediary position (COO or CAO) takes the second highest ranked in the top-five executives' compensation. CFO Second Dummy equals to 1, if the CFO position takes the second highest ranked in the top-five executives' compensation. See Table 9 for description of other variables. *, **, and *** indicate significance at the 10%, 5% and 1% level, respectively. T-statistics are in parentheses.

Dependent Variable: CPS	(1)	(2)	(3)	(4)
CEO Tenure	-0.012	-0.021	-0.023	-0.035
	(-0.52)	(-0.89)	(-0.78)	(-1.20)
CEO Duality	0.689**	0.531*	0.826**	0.669*
	(2.67)	(2.07)	(2.59)	(2.12)
CEO Age < 50	-1.000***	-0.971***	-1.354***	-1.335***
	(-3.70)	(-3.60)	(-3.99)	(-3.94)
CEO Age > 65	-0.224	-0.223	-0.635	-0.634
	(-0.47)	(-0.46)	(-1.13)	(-1.12)
CEO Age Missing	0.387	0.314	0.707	0.628
	(0.53)	(0.43)	(0.73)	(0.65)
CEO from Outside	0.391	0.338	2.077***	2.068***
	(0.97)	(0.84)	(4.06)	(4.05)
CEO from Outside Missing	-0.063	-0.044	-0.160	-0.130
	(-0.19)	(-0.14)	(-0.40)	(-0.32)
Founder CEO	-0.693	-0.579	-1.382	-1.033
	(-0.98)	(-0.82)	(-1.17)	(-0.88)
CEO Ownership			-0.003	-0.007
			(-0.06)	(-0.16)
Other Top Executive Ownership			-0.093*	-0.089*
			(-2.25)	(-2.17)
E-index			-0.013	-0.025
			(-0.06)	(-0.12)
Blockholder Shares			-0.010	-0.009
			(-0.88)	(-0.82)
Abnormal Total Compensation	6.546***	6.494***	6.517***	6.486***
	(37.96)	(37.69)	(29.84)	(29.73)
Industry Adjusted ROA	-1.232	-1.122	-1.931	-1.802
	(-1.20)	(-1.09)	(-1.27)	(-1.19)
Leverage	0.829	0.796	0.332	0.283
	(1.02)	(0.98)	(0.30)	(0.25)
Industry Adjusted Tobin's Q	-0.359***	-0.362***	-0.342*	-0.345*
	(-3.47)	(-3.50)	(-2.39)	(-2.41)
Firm Size	0.655**	0.685**	0.662*	0.719*
	(3.05)	(3.19)	(2.01)	(2.18)
Intermediary Second Dummy	-1.435***		-1.376***	
	(-6.88)		(-5.44)	
CFO Second Dummy		1.692***		1.677***
		(7.38)		(6.02)
year1994	0.967	0.892	1.677	1.562
	(1.18)	(1.09)	(1.50)	(1.40)
year1995	1.857*	1.787*	2.186*	2.078
	(2.28)	(2.19)	(1.98)	(1.89)
year1996	2.800***	2.685***	3.615**	3.454**
	(3.44)	(3.30)	(3.29)	(3.14)

year1997	2.969***	2.850***	3.747***	3.611**
	(3.60)	(3.45)	(3.36)	(3.24)
year1998	3.594***	3.427***	4.746***	4.544***
	(4.34)	(4.14)	(4.23)	(4.05)
year1999	4.477***	4.303***	5.251***	5.047***
	(5.40)	(5.19)	(4.70)	(4.52)
year2000	4.777***	4.645***	5.578***	5.400***
	(5.72)	(5.56)	(4.95)	(4.80)
year2001	5.022***	4.871***	5.809***	5.632***
	(5.97)	(5.79)	(5.14)	(4.98)
year2002	4.874***	4.696***	6.046***	5.812***
	(5.81)	(5.60)	(5.36)	(5.15)
year2003	4.138***	3.949***	5.169***	4.926***
	(4.94)	(4.71)	(4.60)	(4.38)
year2004	4.934***	4.699***	6.113***	5.824***
	(5.86)	(5.58)	(5.42)	(5.16)
year2005	5.031***	4.815***	6.379***	6.100***
	(5.92)	(5.67)	(5.59)	(5.34)
year2006	4.619***	4.404***	5.767***	5.473***
	(5.41)	(5.16)	(5.03)	(4.77)
Constant	31.925***	31.347***	31.101***	30.408***
	(18.79)	(18.44)	(11.80)	(11.54)
Observations	10984	10984	7401	7401
Number of Firm	2040.000	2040.000	1524.000	1524.000
R-squared	0.179	0.179	0.183	0.184

Table 12: CEO Succession

This table shows firm's CEO succession. From our dataset, we chose the intermediary position and CFO position who became CEO in the same firm. Then, we matched with the CEO who has the data became CEO. In Panel A, Year indicates the time when the position became CEO. Outside Appointment indicates the number of CEO who is appointed from outside of the firm. Outside Appointment is decided by comparing the year became CEO and the year joined the company. From third to eighth column, each column indicates the number of the previous title before CEO position. Total is the number of the CEO change in each year. The number of the second highest paid executive before CEO in each firm-year is in the parenthesis. Because our dataset is not balanced every year, the executive title and the compensation rank are defined by the most recent previous year data. In Panel B, we separate the year in two periods and report the percentage of the CEO heir apparent. Internal Promotion in ninth column is the sum of the percentage from third to eighth column. The percentage of the second rank executive promotion to CEO is in parenthesis.

Panel A: Number of CEO Heir

YEAR	Outside Appointment	Intermediary	CFO	Chairman	Divisional Manager	Others	President	Total
1993	40	2 (2)	1 (1)	2 (1)	0 (0)	0 (0)	0 (0)	45 (4)
1994	45	39 (36)	0 (0)	2 (1)	7 (4)	0 (0)	13 (8)	106 (49)
1995	33	41 (36)	3 (0)	4 (1)	7 (4)	1 (0)	22 (18)	111 (59)
1996	46	38 (34)	2 (2)	3 (1)	4 (2)	0 (0)	14 (9)	107 (48)
1997	44	37 (32)	2 (0)	6 (4)	10 (6)	0 (0)	13 (5)	112 (47)
1998	31	46 (42)	2 (2)	6 (4)	10 (6)	0 (0)	11 (8)	106 (62)
1999	37	48 (42)	6 (4)	6 (3)	15 (7)	0 (0)	12 (4)	124 (60)
2000	42	58 (47)	4 (1)	10 (6)	14 (5)	1 (0)	27 (15)	156 (74)
2001	41	43 (32)	9 (5)	2 (1)	13 (6)	1 (0)	23 (16)	132 (60)
2002	34	42 (33)	4 (2)	6 (4)	9 (4)	0 (0)	19 (11)	114 (54)
2003	30	47 (41)	4 (1)	3 (1)	11 (5)	4 (1)	15 (7)	114 (56)
2004	29	39 (36)	6 (2)	1 (0)	8 (3)	1 (1)	17 (10)	101 (52)
2005	25	48 (36)	7 (3)	1 (0)	10 (6)	2 (2)	13 (7)	106 (54)
2006	12	18 (14)	2 (1)	1 (1)	1 (1)	1 (1)	9 (5)	44 (23)
Total	489	546 (463)	52 (24)	53 (28)	119 (59)	11 (5)	208 (123)	1,478 (702)

Panel B: Percentage of CEO Heir

Duration	Outside Appointment	Intermediary	CFO	Chairman	Divisional Manager	Others	President	Internal Promotion
1993~1999	38.82%	35.30% (31.50%)	2.25% (1.27%)	4.08% (2.11%)	7.45% (4.08%)	0.14% (0.00%)	11.95% (7.31%)	61.18% (46.27%)
2000~2006	27.77%	38.46% (31.16%)	4.69% (1.96%)	3.13% (1.69%)	8.60% (3.91%)	1.30% (0.65%)	16.04% (9.26%)	72.23% (48.63%)
1993~2006	33.09%	36.94% (31.33%)	3.52% (1.62%)	3.59% (1.89%)	8.05% (3.99%)	0.74% (0.34%)	14.07% (8.32%)	66.91% (47.50%)

Figure 1: The 2nd ranked position in the top-five executives

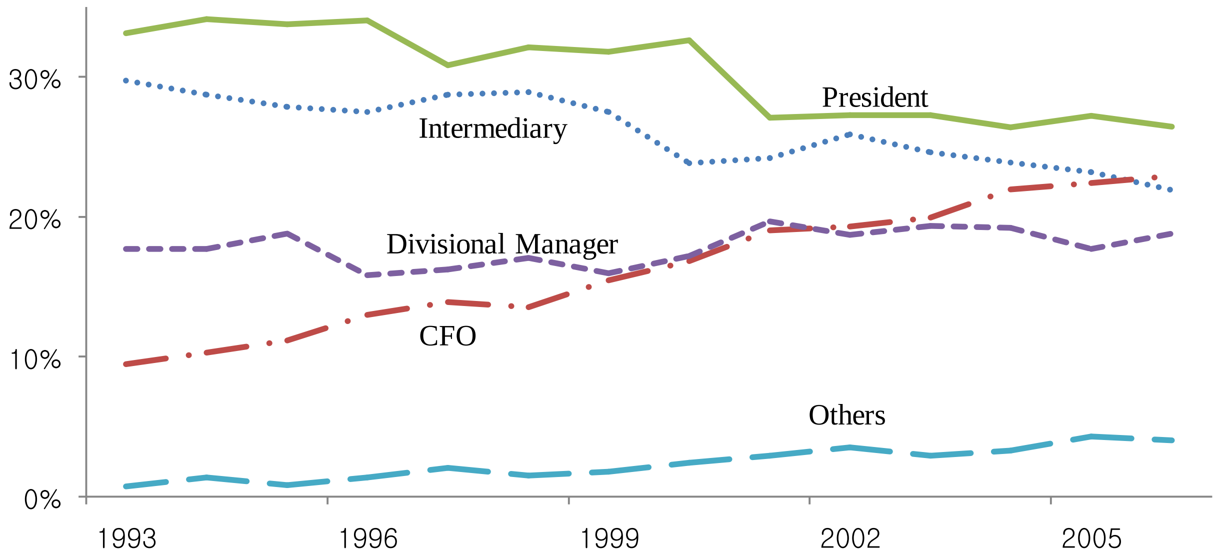

Figure 2: The existence of the intermediary and CFO position in the list of top-five executives

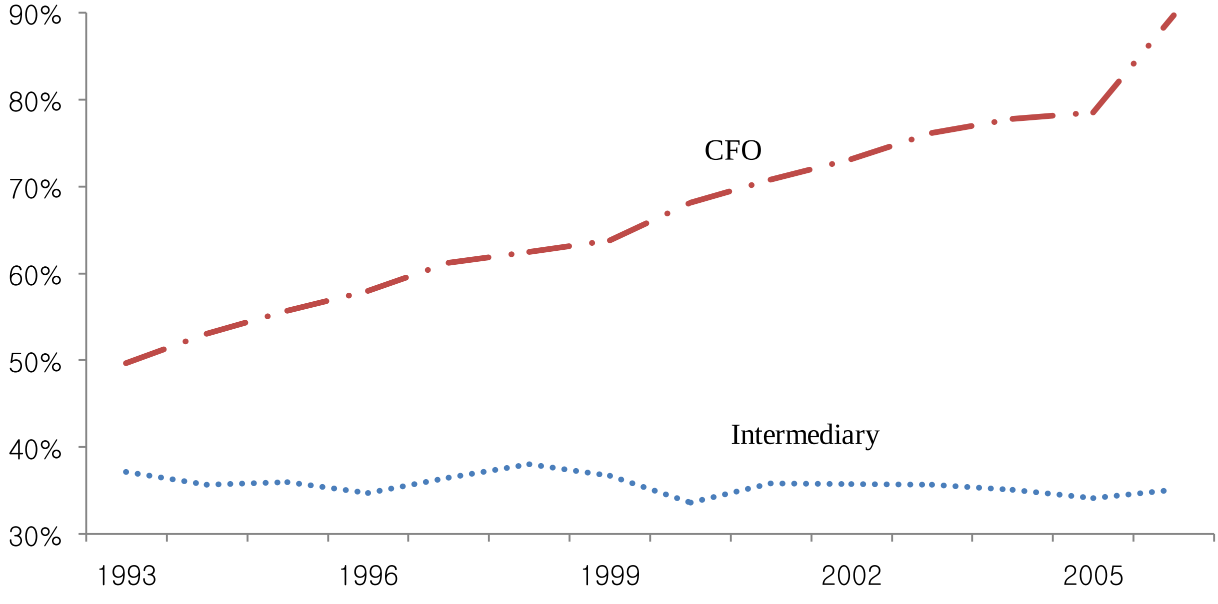

Figure 3: Top Executive Team Structure

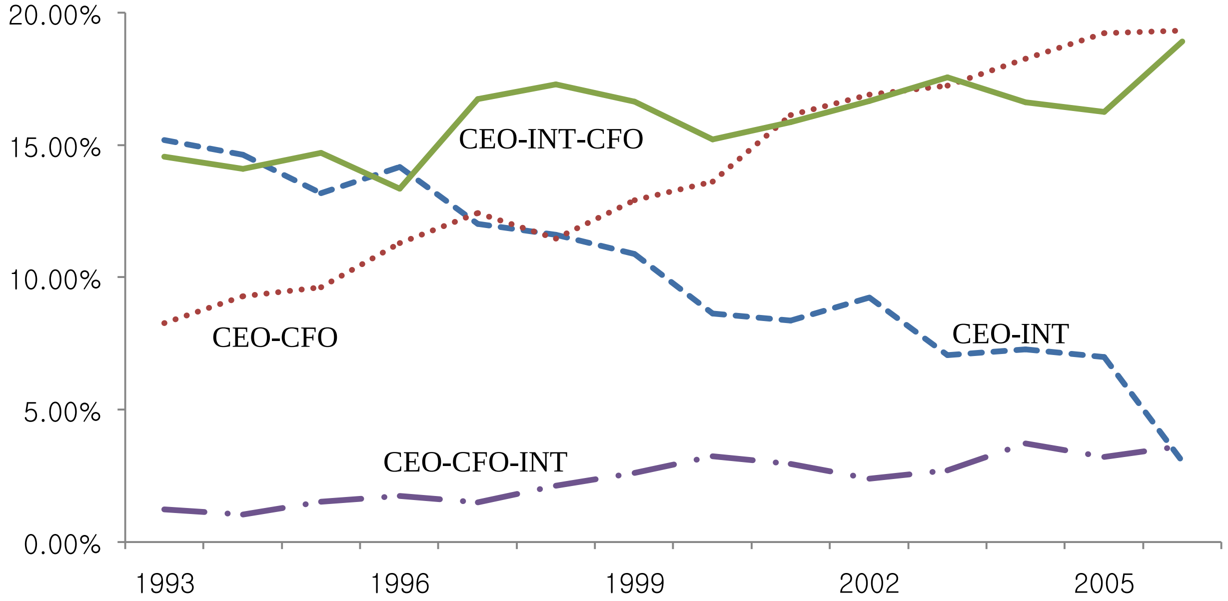

Figure 4: Change of the top-five executives' compensation

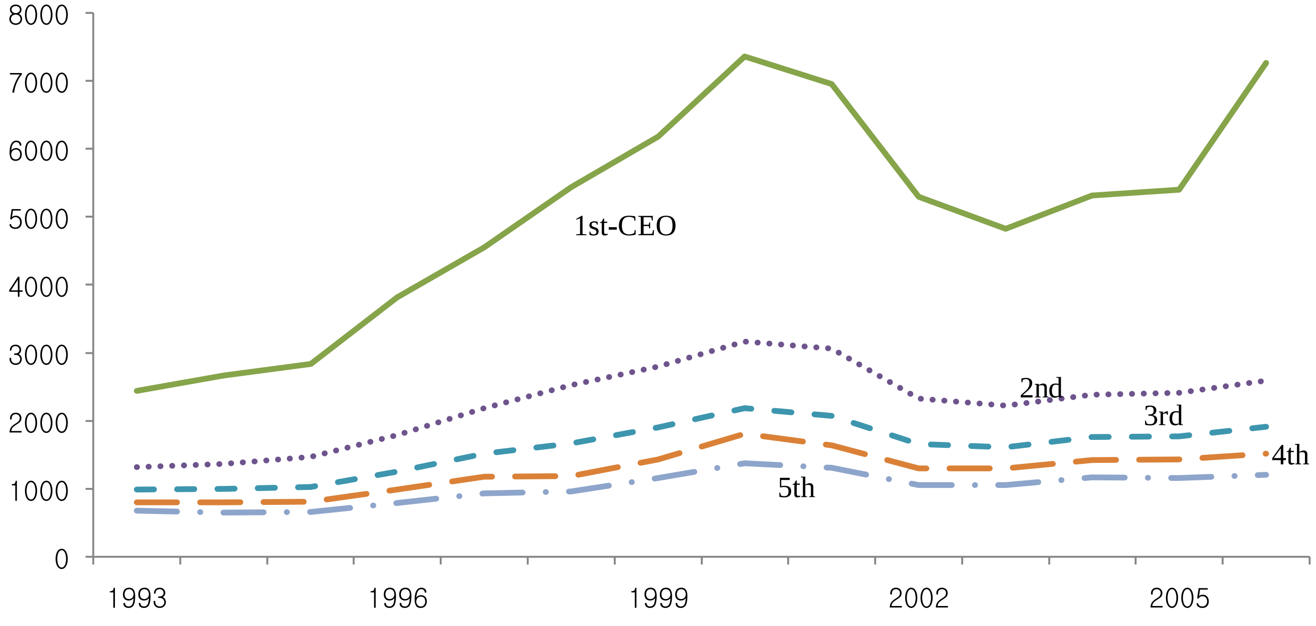

Figure 5: Growth of the Each Rank's compensation