

Does the Use of Internal Capital Markets Lead to Higher CEO Compensation?

Abstract

This paper examines the relation between CEO compensation and the utilization of the internal capital market using publicly-held property-liability insurers during the period 2002-2011. By exploiting the reported internal capital transactions in group insurers, the result of the regression shows that a positive and significant relations of the use of internal reinsurance to CEO's total compensation, bonus, stock awards, and option awards. It suggests that CEO who has a talent of allocating capital efficiently throughout the group would be paid more through incentives than salary.

Key Words: Internal capital markets, CEO compensation, Property-Liability insurance, Reinsurance

1. Introduction

This study started by questioning the influence of the internal capital markets (ICM) on CEO compensation. If a firm has an efficient internal capital markets which enhance firm performance, thus leading to higher CEO compensation. In other words, CEOs with better ability to manage internal capital markets efficiently and make decisions on good investment opportunities are compensated more than CEOs without those abilities are. Although the internal capital market in various industries has been examined in many studies, there are a limited number of studies regarding the relationship between the utilization of internal capital markets and CEO compensation. Thus, this study contributes to the literature by linking internal capital markets to CEO compensation.

The theoretical literature on internal capital markets shows mixed results on whether the internal capital market is active and efficient. Scharfstein and Stein (2000) argue that operating a conglomerate may increase management and coordination costs, exacerbate principal-agent conflicts, and create cross-subsidization among subsidiaries due to inefficient internal capital markets. On the other hand, the benefits of internal capital allocation are also analyzed in several papers; for instance, Gertner, Scharfstein and Stein (1994) argue that the ownership of internal capital markets reduces managers' incentives and redeploys the assets of poorly performing projects easily.

The empirical research finds different results depending on the characteristics of the industry, the level of information asymmetry, diversifications, etc. While Lamont (1997) finds the evidence of overinvestment that the non-oil divisions of diversified oil producers invest more than their industry peers when the oil prices are high, Billett and Mauer (2003) show that efficient subsidies to financially constrained divisions significantly increase the value of a diversified firm. In the U.S. property-liability insurance industry, Powell, Sommer, and Eckles

(2008) find a positive relationship between the investment decision of affiliated insurers and internal capital transfers, indicating that the internal capital markets are utilized to transfer capital to affiliates with the best perceived investment opportunities.

Moreover, the efficient internal capital markets may be derived from the CEO's ability to reallocate resources efficiently across divisions. In the model of Meyer, Milgrom, and Roberts (1992), divisional managers spend resources to get more capital allocated by overstating their divisions' prospects, but the CEO knows it. Stein (1997) argues that even if self-interested behavior of corporate managers leads to overinvestment for their private benefits from control, it would create value by engaging in "winner picking" and allocating capital to divisions where returns are highest. Scharfstein and Stein (2000) argue that "socialism" in internal capital markets is more severe when the incentives of the CEO are misaligned with those of outside investors. Recently, Ozbas and Scharfstein (2009) find the evidence of inefficient investment behavior of conglomerates due to agency problems at the CEO level.

Therefore, the main question of this study is whether the utilization of the internal capital markets is related to firm performance and ultimately affects the CEO compensation. I suggest the main hypothesis that there is a significant relationship between the utilization of the internal capital markets and CEO compensation in the U.S. property-liability insurance industry. If CEOs allocate internal capital appropriately, it leads to better performance and they get paid directly and/or indirectly for their efficient use of internal capital. If a positive relation between the internal capital transactions and the CEO compensation exists, the optimal equilibrium view on CEO compensation would be supported in that CEOs are rewarded for their managerial talent for redistributing internal resources.

First, the effect of the internal capital market utilization on firm performance is estimated with the data from the National Association of Insurance Commissioners (NAIC) regulatory

annual statements. If a positive relationship between the use of internal capital market and firm performance, we can assume internal capital markets to be efficient. The influence of firm performance on CEO compensation is also tested. Then, the effect of the internal capital market utilization on CEO compensation is estimated using the pooled OLS regression model with the NAIC data combined with compensation data from Execucomp database.

This study examines the U.S. property-liability insurance industry because of the prevalence of insurer groups. Although many U.S. life insurers have group structure, their CEOs are exposed to different types of risks and markets. Thus, this study is focus on property-liability insurance groups. Grouping structure creates an active internal capital markets within the group, letting the holding company allocate capital among affiliated insurers. To increase investment, insurers must increase capital, increase reinsurance, alter its loss exposure, or accept an increase in the probability of insolvency (Powell, Sommer, and Eckles, 2008). Increasing capital or reinsurance may be accomplished within the internal capital markets in the form of reinsurance ceded to affiliates or other intragroup capital transactions. Those internal capital transactions among members of insurance groups and holding companies are reported in statutory filings, which are NAIC regulatory annual statements, allowing us to exploit the data of internal capital markets within group insurers.

The main result of the regression shows that there are significant and positive relations of the use of internal reinsurance to the total CEO compensation, bonus, stock awards, and option awards. This finding is larger in magnitude for the group of medium size firms compared to those of small or large firms.

Most of the internal capital market studies are focused on the existence of the active internal capital markets and the efficiency of the internal capital market activities. On the other hand, many studies about CEO compensation in insurance industry are regarding the relation of

compensation to the organizational form, stock or mutual. Therefore, this study will contribute to the literature by proving the evidence that the use of internal capital markets is one of the determinants for the optimal structure of CEO compensation in the U.S. property-liability insurance industry.

The remainder of the paper is organized as follows. Section 2 provides an overview of prior literatures regarding the internal capital markets analyzed by theoretically and empirically and CEO compensation in insurance industry. Hypotheses regarding internal capital markets, firm performance, and CEO compensation are developed in Section 3. The data and samples selection are discussed in Section 4. Section 5 presents the methodology, the definition of variables, and estimation results. Section 6 concludes.

2. Literature Review

Many researchers have discussed internal capital market activities in conglomeration, mainly questioning whether the internal capital market is active or not and whether it is efficient if it is proven to be active. There are mixed results among prior studies regarding the internal capital markets. Rajan, Servaes, and Zingales (2000) suggest that internal capital market activity is not an economically significant factor in the investment strategy for conglomerate firms. In addition, there is a possibility that the internal capital markets are less efficient than external capital markets, leading to value destroying cross-subsidization among divisions because rent seeking behavior of divisional managers cause overinvestment and underinvestment problem (Scharfstein and Stein, 2000). Meyer, Milgrom, and Roberts (1992) argue that rent-seeking behavior of divisional managers and the associated costs may be reduced by divesting the weaker divisions. Wulf (2009) develops an economic model that considers division manager incentives to influence capital allocation decisions, arguing that high investment sensitivity to public information may be a sign of inefficiency in internal capital markets.

On the other hand, Williamson (1975) suggests that management of a diversified firm knows better about investment opportunities than external investors do, allowing internal capital to allocate capital more efficiently. Conglomeration may improve financial efficiency by creating internal capital markets because it is easier to efficiently redeploy the assets of poorly performing projects (Gertner, Scharfstein, and Stein, 1994). Additionally, internal capital markets are less affected by capital market frictions. In the model by Stein (1997), headquarters creates value by engaging in "winner picking" and allocating capital to divisions having the highest returns on investment.

In term of empirical studies of internal capital markets, mixed results have been shown; some supports the efficient internal capital market, while others do not. Lamont (1997) shows that oil companies significantly reduced non-oil investment when oil price decreased in 1986, suggesting that non-oil divisions were subsidized by the profit from oil divisions. Shin and Stulz (1998) find an evidence of inefficient internal capital markets that divisional investment is affected by the cash flow shortfall of other divisions regardless of the value of its investment opportunities. Ozbas and Scharfstein (2009) argue that the investment of stand-alone firms is more sensitive to industry Q than is the investment of unrelated segments of conglomerate firms. Those differences are more significant if managers of conglomerate firms have small ownership stakes, implying that "inefficient investment behavior of conglomerate firms is at least in part due to agency problems at the top of conglomerates".

On the contrary, Khanna and Tice (2001) found active and significant internal capital markets in discount retailing industry, a focused industry without high levels of information asymmetry. Campello (2002) notes that internal capital markets result in inefficient cross-subsidization within small bank holding companies, however, internal capital markets tend to play an efficiency-enhancing role in large bank holding companies. By constructing and

examining an overall measure of the value of a diversified firm's internal capital market, Billett and Mauer (2003) find the evidence that efficient subsidies to financially constrained divisions significantly increase excess value, while inefficient capital transfers significantly decrease excess value.

Regarding the insurance industry, Powell, Sommer, and Eckles (2008) examine whether inflows of capital to an affiliate from the rest of the group and/or increases in reinsurance ceded by the affiliate to other group members lead to higher growth in premiums written by the affiliate. As a result, they find the positive relationship between investments and internal capital transfers, suggesting that internal capital transactions play an economically significant role in the investment decision of affiliated insurers. Furthermore, they show an evidence of internal capital markets being utilized to provide internal capital to the affiliates with the best investment opportunities. The study argues that insurance groups perform a relatively homogenous set of activities compared to diversified conglomerates in other industries, enabling insurance groups to excel in winner picking while minimizing agency costs of diversification. Although research about the internal capital markets has been widely discussed, no study was conducted to investigate the relationship between the internal capital market activity and CEO compensation in the U.S. property-liability insurance industry.

In terms of executive compensation in the insurance industry, Mayers and Smith (1992) find differential compensation levels between executives of mutual and stock insurance companies. The result of their study shows that the compensation for executives of the mutual company is lower than those for executives of stock company and less responsive to firm performance than those for executives of stock company, consistent with the managerial discretion hypothesis. Prior studies suggest that greater managerial discretion enables managers to operate firms more efficiently (Finkelstein & Hambrick, 1990), thus leading to higher

compensation level for managers. Ke, Petroni, and Safieddine (1999) examine the relation between CEO compensation and accounting performance measures as a function of ownership structure. They consider publicly-held property-liability insurers as firms with diffusely-held ownership and privately-held property-liability insurers as firms with closely-held ownership. They find a significant and positive association between return on assets and the level of compensation for publicly-held insurers, suggesting that within closely-held firms, CEO compensation is less based on objective measures such as accounting information but more on subjective measures. Wilson and Higgins (2001) compare CEO compensation practices and sensitivities of insurance firms with those of non-insurance service firms, finding that CEOs of property/casualty and insurance brokerage firms have significantly lower salaries and option compensation than those of non-insurance firms. They also suggest that total compensation in the insurance industry is sensitive to both market returns and firm size firms.

Moreover, Grace (2004) examines the structure of compensation packages for a sample of property-liability insurance executives, and finds that managers in bigger and riskier insurance companies receive greater incentive compensation as a percentage of total compensation. Contrary to findings from prior studies, the result of this study suggests that there is limited evidence that incentive compensation increases significantly with an insurer's investment opportunities. Athavale and Avila (2005) examine the level and structure of executive compensation within the insurance industry. They find evidence supporting the tournament compensation model, i.e. top management team is compensated according to the tournament and different compensation structure across executive pay ranks within large companies.

Based on the fact that pay-for-performance sensitivity has a positive relation to board structure in mutual insurance companies, Mayers and Smith (2010) find the evidence to support the complements hypothesis. According to the complements hypothesis, if incentive conflicts

vary materially, those firms with more outside directors also should implement a higher degree of pay-for-performance sensitivity. They argue that compensation changes are significantly more sensitive to changes in return on assets when the fraction of outsiders on the board is high. As mentioned earlier, many of studies regarding the compensation in insurance industry are mainly focused on organizational structure and corporate governance.

3. Hypothesis Development

If the use of internal capital markets is efficient, then the firm performance would be higher for firms with efficient internal capital markets than for those with no or inefficient internal capital markets. This leads to the first hypothesis:

Hypothesis 1: There is a positive relationship between the use of internal capital markets and firm performance.

The second hypothesis is to test whether better firm performance is translated into higher CEO compensation. Thus, the second hypothesis is as follows:

Hypothesis 2: There is a positive relationship between firm performance and CEO compensation.

The main hypothesis of the study is to see the effect of the internal capital market utilization on CEO compensation. If firm performance gets better due to efficient internal capital markets, CEO would be compensated for his ability to manage internal resources.

Hypothesis 3: There is a positive relationship between the use of internal capital markets and CEO compensation.

4. Data and Sample Selection

The main source of the data for the study is the ExecuComp database and the NAIC property-liability regulatory annual statements over the sample period 2002-2011. Internal capital transactions from the NAIC annual statements are summed up at the group level by group codes. CEO compensation data is extracted from ExecuComp, which provides detailed executive

compensation data for publicly traded companies. The drawback to use Execucomp is the reduction in sample size because about one thirds of the U.S. property-liability insurers are mutuals that are not public. Other firm level accounting data is taken from Compustat as well as firm beta and sigma is taken from CRSP.

First, I started with the 366 firm-year observations in the ExecuComp database with an SIC code 6331 (fire, marine, and casualty insurance) for the sample period. Then, firms that are not matched with the NAIC annual statements by company name are eliminated. Unaffiliated single insurers are excluded since they are assumed to operate without internal capital markets. Insurers with less than \$ 0.5 million in assets are also excluded because extremely small firms tend to operate in narrow geographical areas or product niches that are not representative of the market. Firms that are not viable with zero or negative net premiums written, surplus, or assets are also eliminated. This resulted in a final sample of 324 firm-year observations.¹

5. Empirical Tests and Results

To test the main hypothesis, the equation (1) is estimated using the pooled cross-sectional ordinary least square regression including year dummies.

$$COMP_{it} = \alpha_t + \beta_1 ICM Reins_{it} + \beta_2 ICM Others + \beta_3 ROA_{it} + \beta_4 Asset_{it} + \beta_5 RISK_{it} + e_{it} \quad (1)$$

The dependent variable *COMP* is the natural log of CEO compensation measures; total compensation, salary, bonus, stock awards, option awards, and other compensation. Thus, the regression equation (1) is estimated with each of the compensation measure. Other compensation includes other annual, restricted stock grants, long-term incentive plan payout, and the value of options exercised. The dependent variables and independent variables are defined in Table 1.

Table 1 Variable definition

¹ Excluded are five firms that are not matched with the NAIC annual statements by company name. Three firms are also eliminated because they are filed as individual in the NAIC statements.

Variable	Definition
Total Comp	Total compensation as reported in SEC filing
Salary	Salary
Bonus	Bonus
Stock	The value of stock awards – FAS123R (reported since 2006)
Option	The value of options awards – FAS123R (reported since 2006)
Other Comp	The sum other annual, restricted stock grants, long-term incentive plan payout and the value of options exercised
ICM Reinsurance	The sum of reinsurance premiums ceded to affiliates and reinsurance premiums assumed from affiliates
ICM Others	The sum of absolute values of transactions between affiliates including dividends, capital contribution, guarantees and purchase/sales/exchanges of loan, etc.
ROA	Net income before tax divided by total assets
Assets	The natural logarithm of total assets
Risky Lines	The percentage of premiums written in commercial long tail lines
Beta	Beta from CRSP
Sigma	Standard deviation from CRSP
Number of Subs	Number of subsidiaries
Tenure	Current year - Year became CEO

ICM Reinsurance is the main independent variable measuring the total amount of the internal capital market transaction related to reinsurance within the group, defined as the summation of reinsurance premiums ceded to affiliates and reinsurance premiums assumed from affiliates. Those figures are reported in the Underwriting and Investment Exhibit Part 2B - Premiums Written in the NAIC statement. Since the amount of reinsurance within the group takes a large portion of internal capital transaction in insurance industry, it is separated from other internal capital transactions to see its own impact.

Powell, Sommer, and Eckles (2008) define all variables as changes in insurer capitalization to test whether an increase in reinsurance or capital is associated with an increase in investment. However, variables here are defined not as changes but as the level of capital, compensation, etc. because of such variable as salary that rarely changes.

ICM Others is the sum of internal capital transactions except reinsurance, defined as the

sum of dividends, capital contributions, guarantees, and exchanges in the Schedule Y – Part 2 of the NAIC annual statements. To be specific, exchanges are caused by purchases, sales or exchanges of loans, securities, real estate, mortgage loans or other investments. Guarantees represent income or disbursements incurred in connection with guarantees or undertakings for the benefit of any affiliates. The Schedule Y includes transactions between insurers as well as between insurers and non-insurers within the holding company system, and excludes transactions between non-insurers that do not involve an affiliated insurer. Thus, transactions between insurers and non-insurers are excluded in calculating *ICM Others*.

ROA is the accounting performance measure, defined as the ratio of net income before tax to total assets. It is a measure of how efficiently the firm is using its assets to earn returns regardless of financing structure. A positive coefficient on *ROA* suggests that higher performance leads to higher CEO compensation. Ke et al. (1999) find a significant positive association between return on assets and the level of compensation for publicly-held insurers, consistent with optimal contracting theory. The return on asset is used instead of the return on equity because it is less sensitive to firm's capital structure than the return on equity.

Defined as the logarithm of assets, *Asset* is the measure of size to control the differences in the size of the insurers. This coefficient is expected to be positive because previous studies have shown CEO compensation to be highly correlated with firm size, consistent with the optimal equilibrium view on compensation. For instance, better managers can generate greater value at larger firms and large firms provide managers with high compensation to retain talented executives. Gabaix and Landier (2008) show that the size of large firms explains the variations in CEO pay, across firms, over time, and between countries.

Risk is the proxy for the riskiness of the business, defined as the ratio of the premium written in commercial long tail lines to the total premium written because commercial long tail

lines are considered riskier than personal and/or short tail lines. Commercial long tail lines are classified based on the Schedule P of the NAIC annual statements. Since CEO compensation tends to be higher for those who handle riskier business, thus expecting a positive coefficient on *Risk*. Since sample firms are publicly traded, *Beta* and/or *Sigma* of stocks can be used as risk measures. Expected signs for coefficients on *Beta* and *Sigma* are also positive.

Table 2 provides descriptive statistics on key variables, showing that amount of stock awards comprise a large proportion of the total compensation. The amount of reinsurance assumed from and ceded to affiliates is much larger than those to non-affiliates. The shareholder dividends within groups take a large portion of internal capital transactions.

Table 3 shows the result of the test whether the use of internal capital markets affects firm performance. Positive coefficients on *ICM Reins* suggest that internal capital markets increase firm performance, consistent with the first hypothesis; there is a positive relationship between the use of internal capital markets and firm performance. The risk measures from the stock price, *Beta* and *Sigma*, have negative impact on firm performance.

The effect of firm performance on CEO compensation is shown in Table 4. Since coefficients on *ROA* are positive and significant in all four regressions, we can say that CEOs are compensated for firm performance. The *Tenure* has a positive relation to CEO compensation, suggesting that longer the period of working as a CEO leads to higher compensation.

In Table 5, the results of regression of CEO's total compensation on internal capital markets use. Many of the regressions show a positive relationship between the CEO compensation and the use of internal reinsurance, while they show a no relation of CEO compensation and other internal capital transactions. Risk measures and tenure have the similar results to those in Table 4. The adjusted R^2 decreased when *ICM Others* variable is added to the regression, suggesting that including internal transactions other than internal reinsurance does

not help in explaining the level of CEO compensation.

The results of regression of compensation by type on internal capital markets are shown in Table 6. CEO's bonus is positively related to the use of internal reinsurance within the group but negatively related to the use of internal capital transactions other than internal reinsurance. CEO's total compensation and stock awards have a positive relation to the use of internal reinsurance. Thus, I would suggest that CEOs who have better managerial talent for reallocating internal resources via reinsurance tends to have higher incentives. The fact that the internal capital market is significantly related to such incentives as bonus, stock awards and option awards, not to salary, may be consistent with the managerial discretion hypothesis.

Among risk measures, Sigma has a significantly negative impact on firm performance and CEO compensation. Similar to the results of above tables, longer CEO tenure leads to higher CEO compensation. However, the number of subsidiaries does not seem to affect CEO compensation. Furthermore, I use cluster-robust standard errors that clustered on the CEO code or the group code and the significance of coefficients stays the same.

6. Summary and Concluding Remarks

The paper examines the relation between CEO compensation and the utilization of the internal capital market in publicly-held property-liability insurers during the period 2002-2011 by exploiting the prevalence of group structures in the U.S. insurance industry and the reported internal capital transactions in group insurers. The main question is whether the efficient internal capital markets increase firm value, ultimately leading to higher CEO compensation, i.e. CEOs are rewarded for their managerial talent for redistributing internal resources.

The result of the regression shows that a significant and positive relation of the use of internal reinsurance to total CEO compensation, bonus, stock awards, and option awards in the U.S. property-liability insurance industry. It suggests that if CEOs in the U.S. property-liability

insurance industry have the ability to allocate capital efficiently throughout the group via reinsurance, they would be paid more through bonus or other long-term incentives than those who do not utilize internal reinsurance. Consequently, the utilization of internal capital markets can be considered one of the determinants of CEO compensation.

The future work to be done is to consider other control variables that could affect CEO compensation for robustness check. To investigate the network inside the group is also interesting by analyzing affiliates that received funds from other affiliates and analyze their characteristics, performance, etc. Moreover, the hypothesis can be tested in other industries where the data or proxy of the internal capital transaction is available because the argument of this study may not generalize to other industries since property-liability insurers have different characteristics to those of others.

Table 2
Summary Statistics of the Sample Insurers

Variable	Mean	Std. dev	Min	Max
				<i>(in thousands)</i>
Salary	904.70	358.07	0.00	3000.00
Bonus	850.16	1447.28	0.00	10125.00
Stock	2156.66	3586.29	0.00	42226.00
Option	688.13	1242.76	0.00	7224.00
Other Comp	392.36	1089.08	0.00	14253.00
Total Comp (SEC)	6632.44	6234.18	204.10	46770.00
Tenure in Years	9.45	9.59	0.00	46.00
Beta	0.89	0.42	0.00	3.00
Sigma	0.02	0.01	0.00	0.00
Risky Lines	0.51	0.30	0.00	1.00
				<i>(in millions)</i>
Asset	52993.56	145464.35	490.70	1060505.00
Liability	45417.72	130072.35	418.20	954182.00
Net Income Before Tax	892.71	5415.88	-80053.00	28932.00
ROA	0.04	0.04	-0.10	0.00
Number of Subs	14.23	13.04	0.00	62.00
Reins Asmd Affiliates	4693.2	9431.4	0.0	52700.0
Reins Asmd Non-Affiliates	841.4	1838.0	0.0	12100.0
Reins Ceded Affiliates	5128.6	9868.3	0.0	56780.0
Reins Ceded Non-Affiliates	1402.8	2408.8	0.0	15340.0
Dividends	9290.5	31342.1	-12330.0	294300.0
Capital Contributions	-3470.8	46339.2	-826300.0	23140.0
Purchase, Sales, Exchange	-920.9	6141.4	-77580.0	20970.0
Guarantee	593.5	4122.2	-12550.0	53440.0
ICM Reinsurance	9821.7	19274.4	0.0	109027.0
ICM Others	5492.5	47277.8	-675592.0	312225.8
ICM Others (Absolute value)	15644.3	64988.1	0.0	976986.0

Table 3
Regression of firm performance on internal capital markets

	Dependent Variable = ROA					
	(1)	(2)	(3)	(4)	(5)	(6)
Asset	-0.005*** (-6.10)	-0.007*** (-5.21)	-0.008*** (-5.98)	-0.008*** (-5.93)	-0.006*** (-4.36)	-0.007*** (-5.19)
ICM Reins		0.002** (2.44)	0.002* (1.89)	0.002* (1.78)	0.001 (1.29)	0.001 (1.54)
ICM Others			0.001 (1.36)	0.001 (1.48)	0.001 (1.14)	0.001 (1.03)
Riskyline				0.004 (0.84)		
Beta					-0.013*** (-3.86)	
Sigma						-0.773*** (-5.63)
_cons	0.056*** (6.47)	0.057*** (5.87)	0.065*** (6.67)	0.063*** (6.42)	0.064*** (6.74)	0.077*** (8.15)
<i>N</i>	321	294	275	274	275	275
adj. <i>R</i> ²	0.287	0.276	0.300	0.295	0.336	0.374

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4
Regression of CEO compensation on firm performance

	Dependent Variable = Total Compensation (SEC reported)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ROA	9.285*** (6.52)	9.743*** (7.12)	9.370*** (6.39)	8.386*** (5.56)	7.719*** (5.24)	8.508*** (5.63)	7.901*** (5.38)
Asset	0.230*** (10.97)	0.228*** (11.51)	0.228*** (10.63)	0.229*** (10.98)	0.237*** (11.64)	0.248*** (9.20)	0.269*** (10.14)
Riskyline		0.632*** (6.65)					
Beta			0.021 (0.25)				
Sigma				-6.724* (-1.76)	-7.704** (-2.07)	-6.836* (-1.79)	-7.906** (-2.14)
Tenure					0.014*** (4.53)		0.015*** (4.79)
Num of Subs						-0.003 (-1.13)	-0.006* (-1.89)
_cons	5.119*** (22.03)	4.836*** (21.28)	5.111*** (21.75)	5.299*** (20.93)	5.082*** (20.18)	5.169*** (18.58)	4.845*** (17.29)
<i>N</i>	321	304	321	321	317	321	317
adj. <i>R</i> ²	0.396	0.479	0.394	0.400	0.440	0.401	0.444

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5
Regression of CEO Total Compensation on Internal Capital Markets

	Dependent Variable = Total Compensation (SEC reported)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ROA	15.248*** (7.06)	15.071*** (6.19)	14.667*** (5.95)	13.820*** (5.48)	13.182*** (5.35)	12.868*** (5.63)	12.829*** (5.17)	12.535*** (5.46)
Asset	0.420*** (9.62)	0.391*** (7.91)	0.376*** (7.43)	0.419*** (8.12)	0.411*** (8.43)	0.457*** (9.94)	0.408*** (8.36)	0.454*** (9.88)
ICM Reins	0.070** (2.33)	0.059* (1.79)	0.057* (1.69)	0.049 (1.46)	0.055* (1.69)	0.050 (1.64)	0.066* (1.95)	0.060* (1.92)
ICM Others		0.025 (0.81)	0.039 (1.21)	0.024 (0.78)	0.019 (0.63)	0.005 (0.19)	0.045 (1.22)	0.031 (0.89)
RiskyLines			0.201 (1.31)					
Beta				-0.222* (-1.76)				
Sigma					-15.934*** (-2.97)	-17.321*** (-3.48)	-16.350*** (-3.04)	-17.703*** (-3.55)
Tenure						0.023*** (4.99)		0.023*** (5.03)
Num of Subs							-0.008 (-1.20)	-0.008 (-1.25)
_cons	3.433*** (10.13)	3.626*** (9.61)	3.596*** (9.51)	3.687*** (9.79)	3.783*** (10.15)	3.236*** (9.00)	3.685*** (9.67)	3.140*** (8.55)
<i>N</i>	200	182	181	182	182	181	182	181
adj. <i>R</i> ²	0.602	0.588	0.590	0.593	0.606	0.662	0.607	0.663

t statistics in parentheses
 * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6
Regression of CEO Total Compensation on Internal Capital Markets by Compensation Type

	Total Comp	Salary	Bonus	Stock	Option	Other Comp
ROA	12.535 ^{***} (5.46)	2.263 ^{**} (2.49)	18.178 ^{***} (3.67)	8.772 (1.15)	11.402 [*] (1.72)	2.005 (0.40)
Asset	0.454 ^{***} (9.88)	0.144 ^{***} (7.24)	0.513 ^{***} (4.41)	0.291 ^{**} (2.28)	0.750 ^{***} (6.08)	0.357 ^{***} (3.23)
ICM Reins	0.060 [*] (1.92)	0.015 (1.11)	0.208 ^{**} (2.45)	0.396 ^{***} (3.56)	-0.146 ^{**} (-2.07)	0.104 (1.41)
ICM Others	0.031 (0.89)	0.014 (0.95)	-0.341 ^{***} (-3.95)	-0.054 (-0.55)	-0.047 (-0.53)	-0.102 (-1.25)
Tenure	0.023 ^{***} (5.03)	0.007 ^{**} (4.29)	0.017 [*] (1.89)	0.054 ^{***} (2.83)	-0.008 (-0.40)	0.020 ^{**} (2.12)
Num of Subs	-0.008 (-1.25)	-0.010 ^{***} (-4.14)	0.009 (0.68)	-0.015 (-0.90)	0.024 (1.64)	-0.015 (-1.17)
Sigma	-17.703 ^{***} (-3.55)	-3.715 [*] (-1.74)	-7.322 (-0.51)	-10.784 (-0.81)	-19.794 [*] (-1.75)	-14.427 (-1.21)
_cons	3.140 ^{***} (8.55)	5.283 ^{***} (31.89)	2.170 ^{**} (2.03)	0.827 (0.78)	0.065 (0.06)	1.201 (1.30)
<i>N</i>	181	271	144	140	101	268
adj. <i>R</i> ²	0.663	0.315	0.386	0.311	0.458	0.052

t statistics in parentheses
^{*} *p* < 0.10, ^{**} *p* < 0.05, ^{***} *p* < 0.01

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Appendix. The list of companies in the sample

Company list

ACE LTD
ALLEGHANY CORP
ALLSTATE CORP
AMERICAN FINANCIAL GROUP INC
AMERICAN INTERNATIONAL GROUP
AMERISAFE INC
ARCH CAPITAL GROUP LTD
ASPEN INSURANCE HOLDINGS LTD
AXIS CAPITAL HOLDINGS LTD
BERKLEY (W R) CORP
CHUBB CORP
CINCINNATI FINANCIAL CORP
CNA FINANCIAL CORP
COMMERCE GROUP INC/MA
EMPLOYERS HOLDINGS INC
ENDURANCE SPECIALTY HOLDINGS
EVEREST RE GROUP LTD
HANOVER INSURANCE GROUP INC
HARTFORD FINANCIAL SERVICES
HCC INSURANCE HOLDINGS INC
HORACE MANN EDUCATORS CORP
INFINITY PROPERTY & CAS CORP
KEMPER CORP/DE
MEADOWBROOK INS GROUP INC
MERCURY GENERAL CORP
NAVIGATORS GROUP INC
OHIO CASUALTY CORP
OLD REPUBLIC INTL CORP
PHILADELPHIA CONS HLDG CORP
PROGRESSIVE CORP-OHIO
RENAISSANCERE HOLDINGS LTD
RLI CORP
SAFECO CORP
SAFETY INSURANCE GROUP INC
SELECTIVE INS GROUP INC
TOWER GROUP INTL LTD
TRANSATLANTIC HOLDINGS INC
TRAVELERS COS INC
TRENWICK GROUP LTD
UNITED FIRE GROUP INC
UNIVERSAL INSURANCE HLDGS
ZENITH NATIONAL INSURANCE CP
