



Executive Compensation Incentives, Analyst Attention, and Firms' Investment in Innovation

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Abstract. Innovation investment is key to high-quality corporate development and should be central to business strategy. Executive compensation incentives not only shape resource allocation but also critically influence innovation efforts. Additionally, analysts, as vital sources of market intelligence, offer oversight and guidance to business decisions. This study examines A-share listed companies to assess how executive pay incentives affect innovation investments and explores the moderating role of analyst attention. The results indicate that higher executive incentives lead to increased innovation investment, an effect that is even stronger under heightened analyst scrutiny. Robustness tests confirm these findings, offering valuable insights for refining compensation policies and shaping innovation strategies.

Keywords: Executive Compensation Incentives, Analyst Focus, Corporate Innovation Investment, Listed Companies.

1 Introduction

1.1 Background of the Study

Innovation is key to high-quality economic growth. China's National Innovation-Driven Development Strategy stresses enterprise - led, market - oriented innovation systems. Executive pay incentives influence innovation investments, while analyst attention reflects innovation expectations and guides corporate behavior. This paper studies A-share listed companies to explore how executive pay incentives and analyst attention affect innovation input, offering theoretical and practical insights to optimize incentives and boost innovation.

1.2 Research Significance

At the theoretical level, this study examines how executive compensation incentives affect innovation investment and how analysts' attention moderates this relationship, thereby enriching corporate governance and innovation management theory while offering fresh insights into the drivers of innovation. Practically, the findings provide empirical evidence and policy guidance for optimizing executive pay, enhancing dis-

closure practices and market regulation, and promoting a more efficient, transparent business environment.

2 Theoretical Analysis and Research Hypothesis

2.1 Executive compensation incentives and investment in innovation

Principal-agent theory points out conflicts between shareholders and executives, leading to agency problems. To solve this, firms design executive compensation plans to align managers' interests with long-term corporate goals, promoting innovation and investment. Yang Junxiao et al. ^[1] and Ren Guangqian et al. ^[2] show such incentives reduce agency conflicts and enhance innovation decisions, fostering long-term development. Optimal contract theory views executive compensation as a strategic balance between shareholders and management. Well-structured contracts lower agency costs, boost operational efficiency, and strengthen innovation capabilities. Competitive incentives prompt executives to take innovation risks, improving R&D outcomes and firm performance, as noted by Li Shufeng et al. ^[3]. Based on these insights, hypotheses are proposed:

H1: Executive compensation incentives can promote corporate innovation investment.

2.2 Moderating effects of analyst attention

According to information asymmetry theory, executives have insider info, leaving outsiders like analysts at a disadvantage. Proper pay structures encourage executives to share accurate info, reducing asymmetry and boosting analyst confidence. Guan Yamei et al. ^[4] show that such incentives promote long - term development, innovation, and attract analyst attention. Signaling theory suggests high executive pay signals firm optimism and transparency, spurring analysts to conduct in - depth research ^[5]. Also, as innovation projects are often complex and opaque, the info gap may cause investors to undervalue them, leading to adverse selection and limiting quality innovation financing. Analysts can bridge this gap through continuous firm monitoring and info sharing ^[6], enhancing disclosure transparency and easing principal-agent issues. Based on this analysis, the paper hypothesizes:

H2: Analyst attention positively moderates the relationship between executive compensation incentives and corporate innovation investment.

3 Research Design

3.1 Sample Selection and Data Source

This study uses annual data from A-share listed companies (2013–2023). It excludes *ST/ST firms, financial companies, insolvent entities, and observations with missing data. Continuous variables are winsorized at the 1% and 99% levels to reduce outlier

effects, resulting in 11,754 valid samples. All data were sourced from the CSMAR database and processed with Stata 17.0 for accuracy and efficiency.

3.2 Definition of Main Variables

Explanatory Variable: Executive compensation incentives (salary). In this paper, we refer to the research methodology of Yin, Shannan et al. ^[7], this paper measures the level of executive pay incentives by calculating the natural logarithm of the total compensation of the top three executives of the company.

Explained Variable: Corporate innovation investment (RD). Drawing on the research methodology of Miao Shujuan et al. ^[8], this paper adopts the ratio of R&D investment to operating revenue to measure the degree of firms' innovation investment.

Moderator Variable: analyst attention (AC). Based on the research results of Yang Junxiao et al. ^[9], this paper takes the logarithm of the number of analysts focusing on the firm in the current year plus one as a measure of analyst focus.

Control Variables. In order to comprehensively consider the impact of potential factors other than the explanatory variable of executive compensation incentives on the results of the study, this paper refers to the existing relevant literature and sets the following control variables: firm size, age, gearing ratio, return on net assets, operating income growth rate, ownership nature, equity concentration.

3.3 Empirical Model Design

In order to deeply explore the relationship between executive compensation incentives and firms' innovation investment, this paper constructs a fixed industry and time multiple regression model (1), and also establishes model (2) to test the moderating effect of analysts' attention on the relationship.

$$\text{Model (1): } RD = \alpha_0 + \alpha_1 \times \text{salary} + \alpha_2 \times \text{Control} + \Sigma \text{year} + \Sigma \text{ind} + \varepsilon$$

$$\text{Model (2): } RD = \beta_0 + \beta_1 \times \text{salary} + \beta_2 \times AC + \beta_3 \times \text{salary} \times AC \\ + \beta_4 \times \text{Control} + \Sigma \text{year} + \Sigma \text{ind} + \varepsilon$$

Where $\alpha_1, \alpha_2, \beta_1, \beta_2, \beta_3, \beta_4$ is the regression coefficient of each variable, *Control* is the control variable, *year* and *ind* denote the year and industry fixed effects, α_0, β_0 is the constant term, and ε is the random error term.

4 Empirical Analysis

4.1 Descriptive Statistics

Table 1 presents this study's descriptive statistics. RD values range from 0.03 - 26.56 (SD = 4.73), showing enterprises' innovation investment differs greatly, influenced by industry features, market competition degree, and technological strength. The executive compensation incentives (salary) average 14.779, with a variance of less than 1, indicating a smaller gap and more even distribution in listed companies' executive pay. Analysts' concern (AC) averages 2.063, meaning about 2 analysts follow each listed company.

Table 1. Results of descriptive statistics for the main variables

<i>VarName</i>	Obs	Mean	SD	Min	Median	Max
<i>RD</i>	11754	4.774	4.730	0.030	3.670	26.560
<i>salary</i>	11754	14.779	0.700	13.266	14.731	16.760
<i>AC</i>	11754	2.063	0.908	0.693	2.079	3.892
<i>Size</i>	11754	22.697	1.320	20.323	22.525	26.664
<i>Lev</i>	11754	0.425	0.185	0.071	0.421	0.839
<i>Age</i>	11754	2.111	0.800	0.000	2.197	3.296
<i>Growth</i>	11754	0.267	0.574	-0.592	0.128	3.520
<i>TOP</i>	11754	0.340	0.146	0.092	0.321	0.730
<i>SOE</i>	11754	0.313	0.464	0.000	0.000	1.000
<i>Roa</i>	11754	0.047	0.055	-0.181	0.043	0.212

4.2 Base Regression Analysis

Table 2 demonstrates the results of the underlying regression analysis. In column (1), with industry and year fixed effects, executive pay incentives (salary) are positively correlated with innovation investment (RD) at 0.216, significant at the 1% level. Column (2) shows this correlation remains significant after adding controls, supporting H1.

Table 2. Benchmark regression results

	(1) RD	(2) RD	(3) RD
salary	0.216*** (3.790)	0.948*** (15.483)	0.710*** (8.669)
AC			-0.143 (-0.397)
Salary*AC			0.053** (2.170)
control variables	No	Yes	Yes
Industry Fixed Effects	Control	Control	Control
Year fixed effects	Control	Control	Control

N	11754	11754	11754
Adj. R ²	0.290	0.392	0.403

Note: Robust t-statistics for regression coefficients in parentheses; *** p<0.01, ** p<0.05, * p<0.1(same table below)

4.3 Moderating effects test

Column (3) of Table 2 presents the results of the regression analysis of the moderated effects. Column (2) is augmented by the inclusion of analyst attention (AC) and the interaction term between executive compensation incentives and analyst attention (salary*AC). The results show that the coefficient of the interaction term is 0.053, which is significant at the 5% level of significance, indicating that analyst attention plays a positive moderating role in the effect of executive compensation incentives on innovation inputs, which verifies hypothesis H3.

4.4 Robustness Tests

Replacement of Explanatory Variables. In order to verify the robustness of the conclusions of the previous analysis, this paper refers to the research method of Li, Wengui et al. ^[10], and adopts the ratio of research and development expenditures to total assets (RD2) to replace the original indicator (RD) for testing. The results are shown in Table 3: after replacing the explanatory variables, the coefficient of executive compensation incentives (salary) in column (1) is 0.007 and is significant at the 1% significance level, which indicates that executive compensation incentives have a positive contribution to corporate innovation investment, and Hypothesis H1 still holds.

Table 3. Robustness tests

	(1) Replacement of Explanatory Variables	(2) Adjusting the Sample Time Horizon
	RD2	RD
salary	0.007*** (17.504)	0.960*** (13.829)
control variables	Yes	Yes
Industry Fixed Effects	Control	Control
Year fixed effects	Control	Control
N	11754	8583
Adj. R ²	0.276	0.382

Adjusting the Sample Time Horizon. To eliminate the potential impact of the epidemic on the results of the study, the sample period was shortened in this study to 2013 to 2019, and the sample size was reduced to 8,583. Column (2) of Table 3 shows the results of the regression analyses after adjusting the time horizon. Compared with the previous analyses, the adjusted sample time horizon did not lead to significant differences in the regression results and the results remained consistent.

5 Conclusions and Recommendations

This study finds executive pay incentives boost innovation investment by meeting needs and encouraging innovation - related risk - taking, as per two - factor theory and Maslow's hierarchy. Analyst attention further strengthens this by enhancing transparency and monitoring, curbing self - serving acts, and magnifying incentives' impact on innovation investment. Based on this, the paper proposes two measures to enhance corporate innovation. First, companies should optimize executive compensation via diverse pay structures, such as combining basic salaries, performance bonuses, and equity incentives. Second, firms should improve info disclosure by sharing timely innovation project and R&D investment updates, reducing information asymmetry and leveraging analyst attention for effective external monitoring.

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