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## DOES EXECUTIVE COMPENSATION MATTER FOR THE RISK OF THE FIRM? EVIDENCE FROM NON-FINANCIAL SECTORS OF PAKISTAN

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### ABSTRACT

Large remuneration packages, according to critics, allegedly pushed managers to take on excessive risks, which in turn contributed to the bankruptcy. This study looked into how executive compensation affected the company's overall systematic risk. This study examined data from 170 non-financial enterprises registered on the Pakistan Stock Exchange for the years 2011 to 2020 to investigate the concern variables. For empirical purposes, this study used the OLS technique. The study's findings show a significant relationship between the explanatory and dependent variables. This finding implies that executives take greater risks to increase shareholder returns when they are paid more. This claim is supported by research control variables, including firm size and return on assets. Since firm size and return on assets significantly and favorably affect the firm's risk. TobinQ, annual holding return, and firm age have a negative impact on the systemic risk of the company as compared to the control variables. The findings of the study suggest that large compensation packages motivate executives to take more risks. Investors and policymakers can utilize this study's findings for decision-making.

*Keywords: Systematic risk; Executives compensation; OLS.*

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### INTRODUCTION

After the 2007–2009 slump in the economy, prominent financial corporations' executive compensation packages came under fire and became a hot issue of debate. Detractors claim that large compensation packages encouraged managers to take on excessive risks, which in turn fueled the financial crisis (Abrokwah et al., 2018). The validity of this claim is investigated in this study by examining the relationship between executive pay and Pakistani non-financial company risk. This study looks at the connection between CEO pay and firm risk as measured by beta (systematic risk of stock price volatility). The analysis of the connection between CEO salary and risk falls into two categories. The first thread focuses on risk as the primary motivator for compensation. The second line of research adopts an opposing viewpoint and contends that executive compensation promotes various types of risky behavior among businesses (White, 2018). Both arguments are noteworthy literary phenomena.

The first strand (Jensen & Meckling, 1976; Gaver & Gaver, 1993; Murphy, 1999; Low, 2009) focuses on firm risk as a determining factor for remuneration. In other words, where executive compensation = f (Risk), risk is the independent variable, and compensation is the dependent variable. The second body of literature (Palia & Porter, 2004; Coles et al., 2006; Fortin et al., 2010; Bai & Elyasiani, 2013; Guo et al., 2014; Abrokwah et al., 2018; White, 2018) assumes an opposing viewpoint and contends that executive compensation

promotes various risk-taking behaviors among organizations. This paper's analysis fits into the latter school of thought, where Risk = f (Executive compensation).

Studies that explore the relationship between risk and executive compensation suggest no agreement has been reached by the researchers. According to Abrokwah et al. (2018), White and Hollingsworth (2018), and Eklund (2015), it is theoretically feasible for risk to have positive, negative, and U-shaped associations with the CEO's total and contingent remuneration. The agents' various levels of risk tolerance, diverse risk definitions, and various country samples may be the cause of the inconsistent results. The ambiguous findings in this area point to intriguing directions for further study in well-known yet unexplored countries like Switzerland. According to Krenn (2015) and Choi et al. (2020), inconsistent findings necessitate additional studies to produce conclusions that can be generalized and compared.

This study focuses on investigating the effect of executives' compensation on the firm's systematic risk by using the data of non-financial listed firms in Pakistan. To the authors' knowledge, this is the first study from the context of Pakistan to explain the effect of executive compensation on the systematic risk of Pakistani firms.

The remainder of the paper proceeds as follows: Section 2 discusses the literature review and hypothesis of the study, Section 3 discusses data, variables, and methodology, Section 4 presents results and discussion, Section 5 concludes the study, and references are cited at the end.

## **LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

The first literature strand was established by a significant study by Jensen and Meckling (1976), who used agency theory to explain why corporations used carefully crafted management incentives given the trade-off between managers' self-interest and shareholders' best interests. Therefore, the issue of executive compensation has been of utmost significance, particularly in light of corporate performance. According to Gaver and Gaver (1993), growth organizations provide more stock option plans to employees and pay their CEOs higher amounts of cash remuneration than non-growth enterprises. Murphy's 1999 study offers a comprehensive look at different facets of CEO compensation, including its framework, how it correlates with the company's results, and the impact salary variations have on future organizational outcomes (Murphy, 1999). Low (2009) examines how managers' risk-taking behavior is affected by equity-based compensation and how this affects shareholder wealth. At the same time, small firms with minimal managerial equity-based incentives experience a reduction in risk when takeover protection is exogenously increased. The second area of study focuses on how compensation affects how risky an organization is. Guo et al. (2014) investigate the connection between bank-holding company risk-taking behavior and the compensation structure of CEOs. The study examined how executive pay in banks influenced corporate risk-taking behavior, both before and following the 2007-2008 financial crisis as well as whether executive compensation in larger banks encourages moral hazard behavior. They discover that raising short- and long-term compensation also raises firm risk. Measures of compensation sensitivity to stock market volatility are created by Belkhir and Chazi (2010), who also look at how these measures affect business risk behavior. They discovered that businesses with high-sensitivity measurements take more risks. By investigating pay sensitivity metrics for bank holding firms, Belkhir and Chazi (2010) further this research and discover that higher CEO option sensitivity to equity risk is associated with greater risk-taking behavior. According to Bai and Elyasiani (2013), the financial industry's deregulation raised CEO remuneration sensitivity in relation to business insolvency risk. According to Fahlenbrach and Stulz (2011), managers who receive long-term, equity-based incentive compensation tend to steer clear of hazardous investments, while CEOs at riskier banks receive larger incentive pay during banking crises. Numerous research assesses how CEO remuneration structure-induced risk-taking incentives impact firm value and performance. According to Palia and Porter (2004), CEO pay and bonuses are negatively correlated with bank risk, supporting the hypothesis by John et al. (1998) that as manager pay and bonuses

rise, bank risk declines. By demonstrating that the value of CEOs' stock holdings is positively correlated with bank risk, Saunders et al. (1990) provide support for their findings. Overall, prior research suggests that pay packages may have an effect on CEOs' willingness to take risks.

However, the majority of this content (Abrokwah et al., 2018) focuses on the financial services sector. By investigating the strength of the association between CEO compensation and corporate risk-taking behavior across the non-financial sector of Pakistan, this study analysis adopts a more complete methodology.

Based on the literature review, this study assumed the following hypothesis:

H<sub>1</sub>: There is a relationship between risk and executives' compensation.

## **METHODOLOGY**

### **Data**

To assess the connection among business risk, operating effectiveness, firm size, and executive salary, this study collected data from annual reports issued by the non-financial listed firms. The study data sample consisted of firms listed on the PSX between 2011 and 2020. According to earlier studies, we eliminated financial entities from our data sample, including commercial banks, closed-end mutual funds, insurance companies, investment banks, leasing businesses, modarabas, and real estate investment trusts. Using the strategy of stratified random sampling, the firms with incomplete annual reports, stock price data, negative equity, and outlier & missing values of variables were excluded, leaving the panel data from the remaining sample of 170 firms for the final analysis. In order to establish a company's market value, information about share market prices was obtained as well from Pakistan Stock Exchange publications.

### **Variables**

#### ***Dependent variable***

Business risk or Systematic risk (Beta): We regarded market and revenue stream risk as a two-sided company risk. The systematic risk component of the capital asset pricing model (CAPM) is a tool to measure market risk since it can reveal how sensitive the return on a company's shares is to general market swings. We receive daily data from kscstocks.com on company stock prices and the KSE-100 market index, as well as rates for three months of risk-free T-bills from a State Bank of Pakistan publication. We used non-missing, non-zero daily stock returns to calculate the difference between equities and the market index from year to year. We used the stock price from the previous day if a stock wasn't traded that day during the market trading session. We did that since it was impossible to calculate the market index and stock prices without balancing the trading days. We employ the following formula for figuring out CAPM:

$$\text{CAPM} = \text{RF} + \beta(\text{RM} - \text{RF})$$

Where RF is Pakistan's 3-month risk-free rate, RM is the market return for the year (i.e., the KSE-100 index), and CAPM is the cost of equity:

$$\beta = \text{COV}(\text{RM}, S_i) / \text{VAR}(\text{RM})$$

Where VAR(RM) is the variance of the market index return, COV (RM,S<sub>i</sub>) is the covariance between individual stock return and market index return and is the yearly beta between individual stock return and market index return. We applied the following formula for estimating the return:

$$R = (P_t - P_{t-1}) / P_{t-1}$$

Where R is return, P<sub>t</sub> is recent value and P<sub>t-1</sub> is the former value.

**Explanatory variable**

Compensation (Logex): Natural log of manager pay in Pakistani rupees, expressed in thousands

**Control variables**

Operating Efficiency (INDEX): Efficiency can be measured as a ratio of particular kinds of inputs to outputs and is essentially the effective use of resources. We merged the three accounting turnover ratios: accounts receivables (i.e., trade debt / net sales), inventory (i.e., inventory/cost of goods sales), and total asset turnover ratio (i.e., Net sales/ Total assets) to create an operational efficiency score in place of using a single turnover ratio to evaluate a company's operating efficiency. Managerial

Firm Size (SIZE): Total assets' natural log in Pakistani rupees

Yearly holding return on the stock (YHR)

The ratio of return from equity holding for one financial year

Market value proxy (TobinQ)

Total liabilities plus the market value of equity divided by total assets.

Return on equity (ROE)

Earning after tax/ total stockholder's equity

Return on assets (ROA)

Earnings before interest and taxes / total assets

**Method**

By following the work of Abrokwah et al. (2018) and Luo et al. (2023), this study used the ordinary least square (OLS) method for the estimation of investigated variables. Panel data were used in the present study. Panel data estimation is a well-known statistical technique for working with econometric data. Because it enables the data to include T time periods and N cross-sections, panel data analysis has gained notoriety among social scientists. Panel data includes a variety of estimating methodologies and a time series of data from each cross-section. The number of observations that are now available in this circumstance also includes developments over time. A panel is said to be balanced if each cross-section has the same number of time observations for each variable.

$$\text{systematic risk}_{it} = \alpha + \beta_1 \text{Managerial comp}_{it} + \beta_2 \text{Firm age}_{it} + \beta_3 \text{operating efficiency} + \beta_4 \text{firm size} + \beta_5 \text{TobinQ} + \beta_6 \text{ROA} + \beta_7 \text{ROE} + \beta_8 \text{YHR} + \mu_{it} \dots\dots(1)$$

**RESULTS AND DISCUSSIONS**

Table 1 shows the descriptive statistics of the study. The mean of systematic risk (Beta) is 0.10. The average operating index is 1.58. The average return on assets is 0.11. mean of return on equity is 0.03. average firm size of natural logarithm of assets in thousand Pak rupees is 15.43. average TbinQ value is 1.31, which is a sign that the average market value of firms in the sample is greater than its book value. The mean of executives' remuneration is 9.85, which is a natural logarithm of remuneration in thousand Pak rupees. The average yearly holding return is 23.00. The average age in log-in years after the establishment of the firm is 3.24.

Table 2 displays the correlation analysis of the study. Correlation analysis is performed to diagnose the possibility of multicollinearity. Results suggest that there is no possibility of multicollinearity because correlation values are too small.

**Table 1. Descriptive statistics of the study.**

Variables	BETA	INDEX	ROA	ROE	SIZE	TBINQ	LOGEX	YHR	AGE
Mean	0.10	1.58	0.11	0.03	15.43	1.31	9.85	23.00	3.24
Median	0.06	1.48	0.10	0.11	15.22	0.93	10.33	5.20	3.22
Maximum	0.70	26.37	1.14	7.47	20.26	25.42	16.35	762.77	4.22
Minimum	-0.32	0.00	-0.60	-86.69	12.10	0.23	0.00	-90.97	0.00
Std. Dev.	0.12	1.12	0.12	2.29	1.46	1.42	3.38	74.70	0.55
Skewness	1.48	8.13	0.88	-33.64	0.52	6.51	-1.69	2.89	-1.05
Kurtosis	5.55	155.62	9.00	1238.35	3.07	72.54	6.11	18.27	5.79
Jarque-Bera probability	1077.67	1668600	2769.07	108000000	77.69	354538	1493.6	18874.4	860.4
Sum	165.39	2683.62	188.40	50.56	26237.51	2233.70	16750	39099.9	5514.7
Sum Sq. Dev.	23.25	2135.29	23.23	8886.72	3597.88	3437.06	19370	9481281	512.3
Obs.	1700.00	1700.00	1700.00	1700.00	1700.00	1700.00	1700.0	1700.00	1700.0

**Table 2. Correlation analysis of the study.**

Variable	BETA	INDEX	ROA	ROE	SIZE	TBINQ	LOGEX	YHR	AGE
Beta	1								
INDEX	-0.03	1.00							
ROA	0.24***	0.17***	1.00						
ROE	0.02	0.05*	0.16***	1.00					
SIZE	0.58***	-0.07***	0.20***	-0.01	1.00				
TBINQ	0.09***	0.17***	0.44***	0.08***	0.12***	1.00			
LOGEX	0.41***	0.03***	0.16***	0.00	0.60***	0.19***	1.00		
YHR	-0.14***	0.06**	0.20***	0.06**	-0.02	0.11**	0.02	1.00	
AGE	-0.16***	0.04	-0.10***	-0.04	-0.01	0.01	0.07***	0.07***	1.00

**Table 3. Regression result of the study.**

Variables	OLS regression	fixed effects	Random effects
LOGEX	0.04*** (0.001)	0.02** (0.001)	0.03*** (0.001)
INDEX	-0.001 (0.002)	-0.001 (0.001)	-0.002 (0.002)
ROA	0.164*** (0.022)	0.057*** (0.020)	0.096*** (0.019)
ROE	0.002 (0.001)	0.001 (0.001)	-0.000 (0.001)
SIZE	0.038*** (0.002)	2.004* (0.005)	0.028*** (0.003)
TBINQ	-0.003** (0.002)	0.003 (0.002)	0.001 (0.002)
YERLY_HOLDING_RETURN	-0.001*** (0.000)	-0.001*** (0.002)	-0.001*** (0.000)
AGE	-0.027*** (0.004)	-0.070*** (0.011)	-0.055*** (0.006)
C	-0.455*** (0.029)	0.224*** (0.073)	-0.198*** (0.047)
R-squared	0.407	0.716	0.129
Adjusted R-squared	0.404	0.683	0.125
Akaike info criterion	-1.965	-2.503	
Schwarz criterion	-1.937	-1.933	
Hannan-Quinn criteria.	-1.955	-2.292	
Durbin-Watson stat	0.708	1.373	
F-statistic	144.832***	21.653***	31.257***

Note: \*\*\* shows the most significant to \* the lowest significant. Coefficients are reported with \*\*\* and standard errors are reported in (...) parenthesis.

Table 3 shows the regression result of the study. Column 1 shows the OLS regression results of the study. Column 2 represents the fixed OLS results, and column 3 shows the random effects results of the study. This study's explanatory variable, executives' remuneration, has a positive and significant effect on beta. This result signals that firms with high executives' remuneration take more systematic risks. The operating efficiency index has an insignificant and negative impact beta. Return on assets has a positive and significant impact on beta. This finding suggests that firms with a higher rate of return on assets take more systematic risks. Return on equity has an insignificant effect on the beta. Firm size has a positive and significant effect on beta. This finding is an indication that firms with more size take more risk. TobinQ has an insignificant impact on beta. Yearly holding return has a negative and significant impact on beta. This finding suggests that the more the firm takes risk, the lower its yearly holding return. Firm age is negatively and significantly associated with the firm's beta. This is a sign that mature firms take less risk compared with immature firms. These findings support the findings of Luo et al. (2022), Abrokwah et al. (2018), Guo et al. (2014), and Belkhir and Chazi (2010).

## **CONCLUSIONS**

This study investigated the impact of executives' compensation on the company's systematic risk. For investigating the concern variables, this study used the data of 170 non-financial firms listed on the Pakistan Stock Exchange for the period of 2011 to 2020. For empirical purposes, this study used the OLS method. The result of the study indicates a positive relationship between explanatory and dependent variables. This finding suggests that when executives are more compensated, they take more risks to enhance the return of shareholders. This study's control variables, like return on assets and size, also confirm this argument because both have a significant and positive impact on the firm's risk. From control variables, TobinQ, Yearly holding return, and firm age have a negative impact on the systematic risk of the firm. This study investigates the effect of executives' compensation on the systematic risk of the firm by using the data of non-financial listed firms in Pakistan. As the literature suggests, this is the first study from the context of Pakistan to explain the effect of executives' compensation on systematic risk of Pakistani firms, to the extent of the author's limited knowledge. This study recommends that higher compensation of managers leads to more risk, which causes bankruptcy. Investors and policymakers take caution about this.

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