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Analyzing the Impact of Executive Excess Compensation on Organizational Technological Innovation: Evidence from Bangladesh Pharmaceuticals & Chemicals Industry

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Abstract
This study analysing the impact of executive excess compensation (EEC) that is influencing the quality and efficiency of Organizational Technological Innovation (OTI). Using the Agency Theory, the Resource-Based View (RBV) and Upper Echelons Theory perspective in this study, the study has identified the compatibility of Executive Excess Compensation (EEC) with Organizational Technological Innovation (OTI) and then it has focused on investigation of the relationship between Executive Excess Compensation (EEC) with Organizational Technological Innovation (OTI) and for this quantitative analysis has been done by the usage of a structural equation modelling (SEM) approach by the usage of SmartPLS software. The findings regarding the compatibility of EEC with OTI suggest even a strong alignment between the executive compensation levels and the organization's innovation capabilities. This indicates that companies offering the executive excess compensation which tend to demonstrate greater innovation efforts that is potentially driven by incentives linked to the compensation structures. Further, the analysis has revealed that higher levels of EEC were consistently associated with the overall greater technological innovation efficiency and to the technological innovation quality which is indicating on a robust relationship between executive pay and innovation performance. The results of this study ultimately provide empirical support for the notion that executive compensation plays a crucial role in case of driving innovation initiatives within organizations which is particularly in the pharmaceutical and chemical sectors of Bangladesh. The findings of the study can give insights for researchers, industry practitioners, policymakers, investors and for academics. However, the study is with some limitation and by acknowledging that further research is definitely needed to explore on the potential areas of improvement on this untapped or unique field.

Keywords: Excess Compensation, Organizational Technological Innovation, Technological Innovation Quality, Technological Innovation Efficiency, Agency Theory, Bangladesh Pharmaceuticals & Chemicals Industry

Introduction

In Bangladesh, the pharmaceutical and chemicals industry is of significant importance as it can produce the medicine and the various chemicals required by the people (Xu et al.). This is a very big industry where there are a lot of companies at different levels (Alam et al.), but there are some larger companies that are 'A Grade' companies because they are known for their high quality standards (Rashid). The people working in a company are paid according to their roles. This disparity is visible in, for instance, the hugely different salaries given to the top-level executives from company to company (Rahman and Kim).

Pharmaceutical and chemical sector in Bangladesh has evolved enormously in the last decade in wake of technological enhancements and regulatory changes during the course of time. These subsections of industries make up a big part of the Bangladeshi economy, with a total market capitalization of USD 24.5 bn. A recent study reveals that the top executives in pharmaceutical and chemical sectors are awarded with above BDT 5.6 (annual income) on an average that bears a substantial part of company expenditures of A-listed companies in DSE. More than 55 per cent of those surveyed had a master's degree or higher and of those 17.1 per cent had a PhD increasing the critical mass of an educated workforce to drive innovation DSE. In addition, the parameters of the regulatory environment are key to innovation dynamics. In particular, the Department of Patents, Design and Trademarks (DPDT) reported a 10% year-on-year rise in new patent applications from the country's pharmaceutical and chemical industry players, suggesting a continued shift towards IP-oriented practices and innovation in Bangladesh.

What the study is exploring on how this wage difference affects the ability of companies to develop new and better processes to set efficiency and quality (Xu et al.), in other words, technological innovation (Borah et al.). So, notable gap in average salary range has been observed between top executives pay and organizational level of innovation in the pharmaceutical and chemical industry in Bangladesh.

A notable gap in average salary range has been observed between top executives pay and organizational level of innovation in the pharmaceutical and chemical industry (Alam et al.). More specifically, it is not clear from studies if the increased pay of senior executives enhances or reduces the innovativeness of these firms (Gayle et al.; Zhou et al.). So, to address these gaps, the study wants to explore these questions;

RQ1: What is the compatibility of Executive Excess Compensation with Organizational Technological Innovation?

RQ2: What is the relationship between Executive Excess Compensation and Organizational Technological Innovation?

The broad objective of this study is to analyse the impact of Executive Excess Compensation on Organizational Technological Innovation in A-graded companies within Pharmaceutical and Chemical Companies in Bangladesh.

- To identify compatibility of Executive Excess Compensation (EEC) with Organizational Technological Innovation (OTI)
- To investigate the relationship between Executive Excess Compensation (EEC) with Organizational Technological Innovation (OTI).

To secure the attainment of results, first of all, the con-current research field on this topic and its relevance have been contextualized. Second of all, the necessity to identify the relevant sources have been identified in literature review section. Thirdly, methodology has been designed then data analysis with discussion has been shown. Finally, to the concluding part, conclusion align with policy and related managerial implications the limitations and future research-based direction are drawn which can allow the researchers, related stakeholders to get ideation for this untapped field.

Literature Review

Enterprise Technology Innovation and the Influencing Determinants

Technological Innovation Quality

From a business point of view, technological innovation quality is the extent to which newly developed technologies fulfil or beyond both market expectations and organizational and a measure of the quality of technological innovation is the level of inventiveness and practicality of the technology that a corporation has implemented (Choi et al.).

To evaluate quality of technology innovation, one should look at patent filings, R&D investment as a percentage of revenue (Cruz-Cázares et al.), and the amount of innovative technology that is implemented (Chen et al.: Pharmaceutical Industry in China).

Technological Innovation Efficiency

From the business point of view Technological Innovation Efficiency refers to effectively and efficiently achieves company goals and objectives by using optimal available resources (Cruz-Cázares et al.). To achieve this strategies for new technologies it requires manufacturing waste minimize, enhanced process of research and development not only this but also maximize return on investment (ROI) (Chen et al.: Pharmaceutical Industry in China). There is a good news that last few years innovative technologies favourable have been very to Bangladesh's pharmaceutical and chemical industries. Data Envelopment Analysis (DEA) studies that examine technical efficiency (Xu et al.) have shown a positive correlation between technological improvements and growth.

Excess Executive Compensation and the level of Enterprise Technology Innovation

Debt Leverage

A company's debt leverage is the ratio of its total debt to its equity capital, which measures how much of the company's operating and growth funds come from borrowed money (Ntim et al.). Leverage measures the degree to which an organization is willing to take on financial risk in order to increase the return on its investments (DesJardine and Shi). Myers also disputes the premise that companies experiencing growth would encounter problems with debt overhang (Myers). The inherent risk in taking out debt may force businesses to forego profitable investment opportunities (Haynes et al.). According to these predictions, research by (Tomschik) and (Chen; Titman and Wessels) all conclude that growth prospects have a negative effect on leverage. The agency problem, according to (Xu et al.), can be resolved if the company issues short-term debt rather than long-term debt. Based on the literature the hypotheses have been developed in the following:

H1: Debt Leverage positively influences Technological Innovation Efficiency.

H2: Debt Leverage positively influences Technological Innovation Quality.

Executive Excessive Compensation

When companies give salaries and bonuses to executives that are seen to be disproportionately high in comparison to the average employee's income or the company's profitability or performance, they use the term 'executive excessive compensation' to describe this practice (Pepper and Gore). Executives are considered to be receiving Excessive Executive Compensation (EEC) if their remuneration is significantly more than their actual performance-based contributions to the organization (Ntim et al.). Discussions on EEC revolve around the central topic of whether it will promote or inhibit innovation (Schulz and Flickinger). Executives with large salaries may be more willing to experiment and take risks, say others (Jensen and Meckling). Based on the literature the hypotheses have been developed in the following:

H3: Executive Excessive Compensation positively influences Technological Innovation Efficiency.

H4: Executive Excessive Compensation positively influences Technological Innovation Quality.

Net Profit Margin on Total Assets

An essential financial indicator is the net profit margin on total assets, which reveals the efficiency with which a company converts its total assets into profit (Ntim et al.). Net profit margin ratio shows company ability to translate investment asset into profitable return through this it also determines management ability to maximize profit on total available resources. Return on Assets (ROA) is one of the prominent indicators that indicate company financial wellbeing. Arranging more funding for OTI it requires higher ROI (Xu et al.). To analyse profitability Bangladeshi chemical and pharmaceutical companies use mean ,ratio analysis, standard deviation, and coefficient of variation (Salauddin). Based on the literature the hypotheses have been developed in the following:

H5: Net profit margin on total assets positively influences Technological Innovation Efficiency.

H6: Net profit margin on total assets positively influences Technological Innovation Quality.

Return on Investment

From business point of view 'Return on Investment' (ROI) refers to performance statistic that measure investment profitability of an investment (Haynes et al.). By using return on investment (ROI) calculations, the effectiveness of investments portfolio and profitability of different investment opportunities company can able to easily evaluate (Ntim et al.). Strong ROI encourage company to invest more money into innovative technologies and other high-risk projects with potentially large returns (Schulz and Flickinger). Analyzing the impact of capital structure on chemical and pharmaceutical industry stock returns (Xu et al.) show that company performance correlated positively certain percentage of ownership arrangements (Schulz and Flickinger). Based on the literature the hypotheses have been developed in the following:

H7: Return on Investment influences Technological Innovation Efficiency.

H8: Return on Investment influences Technological Innovation Quality.

Sales Value

Company ability to produce money from key activates is a primary determinants of its level of performance as well as how much it pay attention to its customer (Haynes et al.). To understand company sales strategy and market penetration it need to look at company sales value like reported net of allowances, returns, and discounts (Schulz and Flickinger). Through measured company sales value we can easily understand company size beside sales value influence company ability to adopt Enterprise Technology Innovation (ETI) (Ntim et al.). Amount of money company can spend for acquisition R&D and technology is determined by company size (Pepper and Gore). According to (Ntim et al.) there is a positive correlation between SV and ETI levels. If sales value increase enterprise technology innovation also increases positively if sales value decrease enterprise technology innovation also decreased. Based on the literature the hypotheses have been developed in the following:

H9: Sales Value positively influences Technological Innovation Efficiency.

H10: Sales Value positively influences Technological Innovation Quality.

The Executive Shareholding Ratio

The Executive Shareholding Ratio present number of shares hold by prominent member like executive, chief financial officer ,board as a percentage of the total shares (Ntim et al.). This ratio show company ability to achieve success depend largely on the level of financial interest held by Top executives of the company (Pepper and Gore). Executive Ownership levels influenced by how much an executive able to tolerate risk and ETI decision-making. (Schulz and Flickinger). Executives who hold large number of ownership encouraged to invest long term innovation in the company (Coles et al.). A number of scholars have argued that a larger board is beneficial to a company's bottom line (Coles et al.; Ehikioya). A large board indicates more experience, managerial vision, and access to resources (Chancharat and Chancharat). Based on the literature the hypotheses have been developed in the following:

H11: The executive shareholding ratio positively influences Technological Innovation Efficiency.

H12: The executive shareholding ratio positively influences Technological Innovation Quality.

The Shareholding Ratio of the Overall Company's Largest Shareholders

The Shareholding Ratio of a company's greatest shareholders is the percentage of total shares held by them (Ntim et al.). Among the biggest stockholders' Equity Interest A key measure of stakeholder control and ownership concentration in a company is the ratio (Xu et al.). An organization's innovation strategy may be impacted by the identity and risk tolerance of its largest shareholder group (Ntim et al.). Large institutional investors may put a premium on immediate profits at the expense of long-term research and development (DesJardine and Shi). The pharmaceutical and chemical industries in Bangladesh are impacted by the composition of their boards and the allocation of shares among shareholders (Haynes et al.). Corporate size is thought to effect firm profitability. No optimal board size is recommended by researchers (Schulz and Flickinger). Based on the literature the hypotheses have been developed in the following:

H13: The shareholding ratio of the overall company's largest shareholders influences Technological Innovation Efficiency.

H14: The shareholding ratio of the overall company's largest shareholders influences Technological Innovation Quality.

Literature Gap

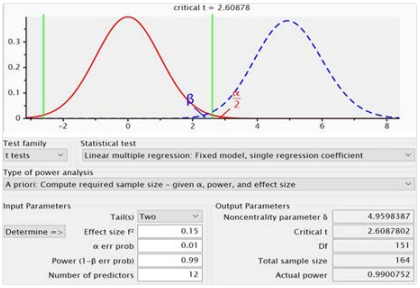
There has been a lot of study on what causes Organizational Technology Innovation (OTI) in general, but almost no study on the chemical and pharmaceutical business in Bangladesh. A large number of the current research limit their scope to industrialized countries or specific businesses, such biopharmaceuticals, forexample. Insufficientresearch has been carried out by Bangladesh's chemical and pharmaceutical industries to ascertain the interplay between Executive Excessive Compensation (EEC) and OTI. Considering the gap in the existing literature, the study has been designed to analyse the impact of Executive Excess Compensation on Organizational Technological Innovation in A-graded companies within Pharmaceutical and Chemical Companies in Bangladesh.

Methodology

Sample Design

Tech based innovation in pharmaceutical companies in Bangladesh mainly two areas Pharmaceuticals & Chemicals;and it has narrowed down to many areas such as chemistry, physiology also medicine, physics and many more area (Xu et al.). In the era of technological advancement, the need of set up, development of technological advancement has been arisen in different companies, industries. Amongst that, as a sample, the selection was only on the area of A-Listed companies from DSE (Dhaka Stock Exchange) in Bangladesh from Pharmaceuticals & Chemicals industry between (2012-2022). The decision to focus solely on A-listed companies from the Dhaka Stock Exchange (DSE) was followed for multiple level of strategic considerations. A-listed companies are enough well-structured companies that follows executive compensation and also that are established in the industry, even mostly established in market for maintaining strict regulation and governance standards. Also, the study is to notice the impact properly, so choosing sample from these companies can ensure high level of data reliability and validity as these firms provide comprehensive financial and operational disclosures that are crucial for accurate analysis. Additionally, A-listed companies represent a significant portion of market capitalization, and their innovation strategies are more likely to impact industry trends, making them ideal for studying the relationship between Executive Excess Compensation (EEC) and Organizational Technological Innovation (OTI). Although the limited sample can't give enough findings to make generalized decision, this limited sample can reduces variability caused by less-regulated or smaller firms that might not have the resources or structure to implement significant technological advancements, thereby enhancing the internal consistency and relevance of the findings. Also, Patent and related data were taken from Department of Patents, Designs and Trademarks, Ministry of Industries, Bangladesh. Data which is basically on the corporate governance, grading, financing information about the industry iconic companies were extracted from DSE which is mostly used by researchers to collect information for Bangladesh Companies listed in Stock Market.

Figure 1 G-Power to Determine Sample Size



Source: Author

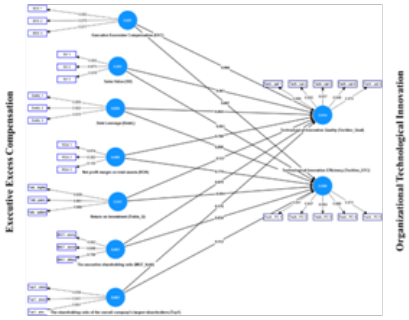
Here, the G power software has been used which is a very widely used software of calculating sample size of a study. In G Power, using the effect size of 0.15 and 99% level of confidence where 1% acceptance of error, the calculated sample size is 164 and so it is used as the sample size of our study shown in figure 1. The study adopts the cross-sectional time horizon which is capturing data at a single point of time (Saunders and Lewis).

Data Collection and Analysis

The data for this study are collected through structured questionnaires distributed to key

personnel within the sampled companies even which is supplemented by secondary data from the Dhaka Stock Exchange and from the Department of Patents, Designs, and Trademarks. The analysis is conducted using SPSS 26, SmartPLS 4, and Stata 15.0 (Saunders and Lewis). This multi-method approaches have been used to ensure the robust and comprehensive findings by integrating results from the all three software tools, enhancing the study's validity and reliability (Zikmund et al.). In order to strengthen the validity of the results in data analysis procedure, confounding variables such as firm size, industry type, market conditions, and financial health were treated as covariates in the Structural Equation Modeling (SEM) process. These confounding variables could have significant impact on the relationship between EEC and OTI. To alleviate their influence, multi-collinearity diagnostic was done that was to ensure that the relationship-based analysis can be unbiased. Moreover, statistical techniques such as hierarchical regression and bootstrapping were used here in order to further validate the consistency and accuracy of the results of the study.

Figure 2 Measurement Model Analysis



Source: Author

Results and Findings of the Study

Reliability Test

In this context, the reliability score which is often been indicated by a value around 0.7 which reflects on the strength of the relationship between the endogenous variable (dependent variable) and exogenous variables (independent variables) in the measurement model which is shown in figure 2. A reliability score of 0.7 indicates a moderate to strong degree of reliability which is signifying that the variables in the model are measuring for the intended constructs consistently (Bell et al.; Saunders and Lewis). This score suggests that the model is sufficiently fit which is for conducting the study and so the study is being conducted.

Convergent Validity as Measurement Model Analysis

Convergent validity requires even actually a positive correlation which is between different tests that measure the same thing or the similar thing. The convergent validity is even measured by using the loadings of the outer model, that is rho_A (the recommended threshold of 0.70), Average Variance Extracted (AVE) (the acceptable level of 0.50), and finally the composite reliability (CR) (the recommended threshold of 0.70) (Bell et al.; Saunders and Lewis; Zikmund et al.). These results shown in table 1 which are surpassing the threshold value which indicates that the measurement models for each construct are reliable and to share a substantial amount of variance with their level of respective indicators which is affirming the robustness of the measurement instruments that has been used in the study.

Table 1 Convergent Validity

	rho_a	CR	AVE
Debt Leverage (DebtL)	0.856	0.912	0.59
Executive Excessive Compensation (EEC)	0.852	0.910	0.71
Net profit margin on total assets (ROA)	0.709	0.706	0.65
Return on Investment (Tobin_Q)	0.939	0.819	0.61
Sales Values (SV)	0.851	0.910	0.63
Technological Innovation Efficiency (TechIno_EFC)	0.908	0.931	0.72
Technological Innovation Quality (TechIno_Qual)	0.914	0.936	0.71
The executive shareholding ratio (MGT_hold)	0.881	0.876	0.69
The shareholding ratio of the overall company's largest shareholders (Top 1)	1.159	0.91	0.63

Discriminant Validity as Measurement Model Analysis

The discriminant validity which requires there to be no correlation between tests that can measure different things. The Heterotrait-Monotrait (HTMT)

ratio matrix is a measure which is enough to compare the correlations between different constructs in order to assess discriminant validity. In the context of discriminant validity, HTMT values are below the threshold of 0.60 generally indicate support for the discriminant validity (Bell et al.; Saunders and Lewis; Zikmund et al.). Upon examination, the HTMT ratios in the table are all below 0.60 (table 2), which is suggesting that the constructs have satisfactory on the discriminant validity. This implies that the measures which has been used for each construct are indeed distinct from the others that is for reinforcing the idea that the chosen constructs which capture unique aspects of to show the effects of the overall executive compensation on technological innovations.

Table 2 Discriminant Validity

	1	2	3	4	5	6	7	8
Debt Leverage (DebtL)								
Executive Excessive Compensation (EEC)	0.303							
Net Profit margin on total assests (ROA)	0.465	0.413						
Return on Investment (Tobin_Q)	0.409	0.466	0.443					
Sales Value (SV)	0.303	0.189	0.484	0.463				
Technological Innovation Efficiency (TechIno_EFC)	0.316	0.219	0.331	0.278	0.381			
Technological Innovation Quality (TechIno_Qual)	0.328	0.425	0.569	0.283	0.378	0.328		
The executive shareholding ratio (MGT_hold)	0.719	0.137	0.193	0.152	0.131	0.257	0.339	
The Shareholding ratio of the overall company's largest shareholders (Top 1)	0.128	0.132	0.012	0.350	0.103	0.105	0.177	0.468

Descriptive Statistics

While the mean scores even suggest overall positivity, the variability which is as indicated by the standard deviations that suggests differing levels of opinion or the experience among respondents, which could signify diverse viewpoints or the experiences within the industry which is shown in the table 3.

Table 3 Descriptive Statistics

	Mean	SD
Technological Innovation Quality (TechIno_Qual)	3.570	1.060
Technological Innovation Efficiency (TechIno_EFC)	3.580	1.073
Executive Excessive Compensation (EEC)	3.624	1.087
Sales Value (SV)	3.634	1.029
Debt Leverage (DebtL)	3.589	1.104
Net profit margin on total assests (ROA)	3.669	0.846
Return on Investment (Tobbin_Q)	3.819	0.988
The executive shareholding ratio (MGT_hold)	3.835	0.916
The shareholding ratio of the overall company's largest shareholders (Top1)	3.756	1.004

Regression Analysis

The high values of R square and adjusted R square which is for both Technological Innovation Efficiency (TechIno_EFC) (0.879; 0.873) and for setting the Technological Innovation Quality (TechIno_Qual) (0.873; 0.880) which indicate that a significant proportion of the variance in these variables can be explained by the predictors those included in the model shown in table 4. The robustness of the models which is as evidenced by the high R square values that suggests that the included predictors have a substantial explanatory power that is regarding technological innovation efficiency and quality (Bell et al.; Xu et al.).

Table 4 Regression Model Summary

	R-square	R-square adjusted
Technological Innovation Efficiency (TechIno_EFC)	0.879	0.873
Technological Innovation Quality (TechIno_Qual)	0.885	0.880

Hypothesis Testing

To assess a structural model, it has been

recommended in order to look at the beta (b) value, the t-value, and the corresponding p-value as a must even. As it is recommended that the p-value confirms an effect existed where it will not inform the extent of the overall impact (Bell et al.; Saunders and Lewis; Zikmund et al.). For this, it is recommended in order to report the effect size (f square) in addition to every p-value. In the hypothesis test results, each predictor variable's having impact on Organizational Technological Innovation which is assessed focusing on Technological Innovation Efficiency (TechIno_ EFC) and for the Technological Innovation Quality (TechIno_Qual) (Bell et al.; Xu et al.).

The analysis of the hypotheses reveals that the Debt Leverage (DebtL) positively influences which is on both Technological Innovation Efficiency (TechIno_EFC) (β=0.358, t=2.803, p=0.003) and on the Technological Innovation Quality (TechIno_ Qual) (β=0.311, t=2.108, p=0.034). Similarly, Executive Excessive Compensation (EEC) positively affectingon both TechIno_EFC (β=0.397, t=2.388, p=0.005) and TechIno_Qual (β=0.425, t=2.278, p=0.011). Moreover, Net profit margin on total assets (ROA) positively influences TechIno_EFC (β=0.111, t=2.024, p=0.004) and TechIno_Qual (β=0.117, t=3.937, p<0.001). TobinQ positively influences TechIno_EFC (β=-0.019, t=2.002, p=0.027), while it has a positive effect on the TechIno_Qual (β=-0.007, t=2.049, p=0.041). Sales Value (SV) positively influences even on both TechIno_EFC (β=0.142, t=2.358, p=0.032) and on TechIno_Qual (β=0.147, t=3.873, p=0.004). The executive shareholding ratio (MGT_hold) positively influences on the TechIno_EFC (β=0.082, t=2.278, p=0.011) and TechIno_Qual (β=0.058, t=2.024, p=0.004). Lastly, the shareholding ratio of the overall company's largest shareholders (Top1) which is positively influences TechIno_EFC (β=-0.073, t=3.937, p<0.001) that iseven on TechIno_Qual (β=0.003, t=2.002, p=0.027) (Table 5).

In this study, all t-values are greater than 2 which is signifying on a robust statistical significance. Moreover, the p-values are less than 0.05 which is confirming the results' statistical significance. The beta coefficients, being less than 0.25 which can suggest that the variables have a moderate effect on OTI that is contributing to a well-balanced and significant impact. Therefore, the overall results indicate on a strong and meaningful relationship that is supporting the study's hypotheses. The Variance Inflation Factor (VIF) values which is ranging from 2.018 to 2.746 that can indicate generally acceptable levels of multicollinearity among the independent variables in the model as it is known that VIF values below 5 suggest that collinearity is not even a major concern. Regarding effect size (F square) that which gauges the magnitude of the impact of each independent variable on the overall dependent variable which values range from 0.010 to 0.132. These values suggest that the individual variables have small to moderate effect-based sizes on OTI.

Table 5 Hypothesis Testing Outcomes

Hypothesis	Relation	Beta	Mean	t-Value	p-Value	Decision	VIF	F Square
1	DebtL->TechIno_EFC	0.158	0.353	2.803	0.003	Accepted	2.914	0.151
2	DebtL->TechIno_Qual	0.111	0.307	2.108	0.034	Accepted	2.685	0.110
3	EEC->TechIno_EFC	0.197	0.393	2.388	0.005	Accepted	2.344	0.112
4	EEC->TechIno_Qual	0.125	0.425	2.278	0.011	Accepted	2.379	0.132
5	ROA->TechIno_EFC	0.111	0.114	2.024	0.004	Accepted	2.746	0.121
6	ROA->TechIno_Qual	0.117	0.118	3.937	0.001	Accepted	2.983	0.195
7	Tobin_Q->TechIno_EFC	0.119	0.042	2.002	0.027	Accepted	2.018	0.118
8	Tobin_Q->TechIno_Qual	0.107	0.011	2.049	0.041	Accepted	2.020	0.075
9	SV->TechIno_EFC	0.142	0.142	2.358	0.032	Accepted	2.593	0.014
10	SV->TechIno_Qual	0.147	0.146	3.873	0.004	Accepted	2.922	0.132
11	MGT_hold->TechIno_EFC	0.182	0.069	2.278	0.011	Accepted	2.379	0.112
12	MGT_hold->TechIno_Qual	0.058	0.042	2.024	0.004	Accepted	2.746	0.121

13	Top1->TechIno_EFC	0.073	0.041	3.937	0.001	Accepted	2.983	0.095
14	Top1->TechIno_Qual	0.003	0.021	2.002	0.027	Accepted	2.018	0.018

Discussion of the Study

Building upon the previous literature that has been examined on the relationship between executive compensation and to set organizational innovation, where this study contributes on unique insights into the context of the overall A-graded pharmaceutical and chemical companies in Bangladesh that is noticed which is shown on findings section (Murphy and Marvel). Aligned with the study's broad objective of analysing the impact of Executive Excess Compensation (EEC) on the Organizational Technological Innovation (OTI) within even A-graded pharmaceutical and chemical companies in Bangladesh (Cruz-Cázares et al.), the specific objectives ultimately aimed to identify the compatibility and to investigate on the relationship between EEC and OTI (Xu et al.).

The findings which are regarding the compatibility of EEC with OTI suggest on a strong alignment between executive compensation levels and to the organization's innovation capabilities. The study reveals that higher levels of EEC are even positively correlated with the both technological innovation efficiency (TechIno_EFC) and to the technological innovation quality (TechIno_Qual) (Chen et al.: The Impact of Government Subsidy on Supply Chains' Sustainability Innovation). This indicates that companies which is offering executive excess compensation which tends to demonstrate greater innovation efforts which is potentially driven by incentives linked to compensation structures (Xu et al.). Furthermore, the investigation which is into the relationship between EEC and OTI highlights the strategic importance of the executive compensation in case of shaping innovation dynamics within the organizations (Haynes et al.). This suggests that executives receiving excess compensation that may be more motivated to drive innovation initiatives which is within their organizations, potentially leading to the enhanced technological advancements and to the competitive advantages (Xu et al.).

This study identified a distinct pattern wherein the executive excess compensation (EEC) that showed a strong compatibility with the organizational technological innovation (OTI) within the sampled companies (Choi et al.). Contrary to conventional wisdom that has excessive compensation might not always align with the positive organizational outcomes, the findings here suggest on a different narrative. Specifically, the analysis has revealed that higher levels of EEC were consistently associated with the greater technological innovation efficiency (TechIno_EFC) and to the quality (TechIno_Qual), indicating on a robust relationship between executive pay and to the innovation performance (Genin et al.).

This study sheds light on a previously even under explored aspect of executive compensation and to set the innovation dynamics in the context of Bangladeshi pharmaceutical and chemical companies. The findings not only contribute to the academic literature which is by enriching the understanding of the complexities that is surrounding executive pay and innovation but also it can offer practical implications for industry practitioners and for the policymakers aiming to foster a culture of innovation which is within organizations (DesJardine and Shi).

Theoretical Implications of the Study

This study contributes to the theoretical understanding in several significant ways. Firstly, it aligns with Agency Theory, which posits on the issues related to the conflicts between shareholders and executives due to the misaligned incentives (Fama and Jensen). The findings emphasize on the critical role of executive compensation in case of exacerbating or with alleviating these conflicts those are particularly concerning the Organizational Technological Innovation (OTI) (Xu et al.). The study underscores on the need for strategic compensation practices that can drive innovation oriented strategies.

Secondly, within the overall framework of the Resource-Based View (RBV), the study suggests that executive compensation can serve which is as a lever for the leveraging organizational resources in order to drive innovation (Barney). When compensation is aligned which is with innovation objectives,

organizations can effectively to harness their unique resources in order to enhance technological capabilities, thereby fostering on a sustainable competitive advantage. These findings underscore on the imperative for organizations in order to tailor compensation structures in order to incentivize innovation effectively (Xu et al.).

Finally, the study aligns even with Upper Echelons Theory, which suggests that executive attributes may influence on the organizational outcomes. It finds that executive compensation which serves as a reflection of the executive influence and to the decision-making within organizations which is particularly concerning on the innovation initiatives (Hambrick and Mason; Jensen and Meckling).

Practical Implications of the study

The findings offer actionable insights for the overall corporate boards in the Bangladesh Pharmaceuticals & Chemicals Industry which is for enabling them to rethink and to recalibrate their executive compensation strategies effectively. Firstly, firms can utilize on the research to optimize their OTI activities which is for focusing on both quality and to efficiency. While TechIno_Qual is crucial for improving efficiency which is often neglected that can be facilitated by appropriate executive compensation strategies (Xu et al.).

Secondly, organizations can try to set optimization of executive compensation to promote OTI. By increasing the executive compensation gradually, firms can alleviate on the negative impact of R&D investment on the TechIno_EFC (Ntim et al.). However, it's essential in order to consider unintended consequences such as widening pay disparities and for the purpose of fostering short-termism, ensuring that executive compensation aligns with the long-term strategic objectives.

The study provides on the practical guidance for organizations and policymakers in case of optimizing executive compensation in order to drive on the organizational technological innovation effectively (Xu et al.). For practitioners, the findings offer actionable strategies to optimize executive compensation to drive technological innovation, enhancing organizational performance. Investors can use the insights to assess the long-term innovation potential of firms based on their compensation structures, guiding more informed investment decisions (Genin et al.). Academics can build on this study to explore further the complex dynamics between executive compensation and innovation, contributing to the broader literature on corporate governance and strategic management. By aligning compensation practices with the innovation objectives, organizations can foster even on a culture of continuous technological advancement which is ultimately for ensuring long-term sustainability and to secure the competitiveness in the pharmaceuticals and chemicals industry (Chen et al.: Pharmaceutical Industry in China).

Conclusion and Recommendations

Conclusion

By adhering to the study's overachieving aim of examining the effect of Executive Excess Compensation (EEC) on OTI, the authors have effectively acknowledged and examined the compatibility and connection between the two variables. This study has provided insightful data related to executive compensation and organisational technological innovation (OTI) and their correlation.

The study's main objective-identifying the compatibility between executive excess compensation (EEC) and organisational technology innovation (OTI) - was achieved through thorough statistical analysis. A correlation test and data analysis were conducted on A-grade pharmaceutical and chemical industries in Bangladesh to determine the association between EEC levels and OTI's effectiveness and quality. Regression modelling has been used to establish the strong statistical support for the correlations between the effect of EEC and other factors, such as innovation outcome and offering. The study used a variety of statistical methodologies to find the only supporting evidence for the second purpose, which is to investigate the association between Executive Excess Compensation (EEC) and Organisational Technological Innovation (OTI). By using quantitative analysis using regression analysis to account for any confounding variables, the study looked at the relationship between EEC levels and OTI outcomes quantitatively. In order to validate qualitative claims on the influence of

CEO salary on innovation dynamics in companies, this study also carried out hypothesis testing. The study clarified the mechanisms through which EEC stimulates innovation initiatives, adding to a better understanding of the relationship between executive compensation and organisational innovation. It did this by combining statistical findings with theoretical insights from literature on upper echelons theory and organisational behaviour.

In a subtle way, the data that has been shown indicates that OTI quality is wholly submissive to a proper range of EEC, outlining the strategic importance of a correlated innovation goal with compensation incentives. This discussion also uncovers a correlation between higher and improved innovation efficiency, focusing on the effects of executive remuneration on the dynamics of innovation inside the organization. This result doesn't agree with the general thought that high compensations can be associated with conducive organisational outcomes, particularly when it comes to technical innovation. The research findings have theoretical implications that are consistent with Agency Theory, the Resource-Based View (RBV), and Upper Echelons Theory. These implications highlight the crucial role that executive compensation plays in influencing innovation-driven initiatives and efficiently using organisational resources. Practically speaking, the results provide policymakers and business boards with useful information for maximising CEO compensation in order to promote OTI.

This exploration result has theoretical implications that are consistent with agency theory, the resource-based view (RBV), and upper echelons. This conjugation focuses on the critical role that executive compensation plays in inspiring innovation-driven initiatives and efficiently using organisational resources. In a specific manner, the outcome provides policymakers and business boards with useful information for maximising CEO remuneration in order to encourage OTI. In a nutshell, this research is useful in case of both academic understanding and applied decision – making in the area of executive compensation and organizational technology innovation. If they need guarantee long-term sustainability and competitiveness in Bangladesh's pharmaceutical and chemicals industry, organisations and policymakers can provide direction on optimising compensation practices to encourage a culture of continual technical improvement.

Recommendations

Firms can change the way executives are paid and tie a large percentage of their pay to new product development measures have an impact on performance such as R&D spending or patents obtained more specifically, to increase OTI,. Also, firms can make long-term incentive plans that could then pay out based on the degree to which innovation outcomes are sustained over multiple 3 years. Also, Policymakers can make proper regulatory frameworks and tax incentives which can help shape an environment in which companies choose to adopt compensation models that better align the rewards for executives with the goals of innovation policy. Further, Researchers those ought to encourage a culture of innovation can conduct study on resources management and well-defined structures need in order to make findings on favoring creativity from their employees; otherwise, compensation will fail to signal that the firm values innovation. So, for Future Innovation, these are steps that will enable continuous innovations and hence ensure corporate growth aligns to technology advances.

Limitations and Future areas of the study

Though this research has explored various helpful insights into the industry, it has some drawbacks too. At first, the result can't be applied to every kind of industry or product-based organisation since it is founded over A-grade chemicals and pharmaceutical organisations in Bangladesh. Secondly, a variety of factors, including corporate performance, local economic conditions, and individual executive competencies, impact the excess compensation in a cross-sectional time frame. Adjusting complex executive compensation (EEC) and demonstrating it is quite difficult. The third limitation comes with the sample size. Though it needed a reliable sample size for the study, it was easy to execute with a small sample size. Fourthly, this study was analysed by quantitative methods, but it may not have proved adequate to understand and measure the complexity

and contextual nuances of the phenomenon being studied, although a quantitative study was useful for making and showing different equivalents and relations. Finally, the lack of international recognition and the outcome of relevance finding restrict its implementation considering other research throughout the world in this sector. However, further research might investigate the effect of EEC on organizational innovation in more settings from various industries and geographical regions. Qualitative, as well as longitudinal research can reveal more about the interchange dynamics between executive compensation and innovation. Furthermore, consideration of other determinants such as corporate culture or market context may add depth to the understanding of these links.

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