



## HOW EXTERNAL CORPORATE GOVERNANCE AFFECTS SEOS PERFORMANCE: MEDIATING EFFECT OF AGENCY COSTS

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### ABSTRACT

In an analysis of moment structure (AMOS) setting, this study investigates the effectiveness of external corporate governance in mitigating agency costs and enhancing long-term operating performance for seasoned equity offerings (SEOs). Additionally, this study hypothesizes the crucial and mediating role of agency costs in the relationship between governance structure and post-SEO operating performance. The results reveal that the mediating role of reducing agency costs is crucial to the causal relationship between external corporate governance and post-SEO performance, indicating external corporate governance can enhance performance through direct positive influence on firm performance and, more importantly, through indirect negative influence to decrease agency costs.

**Jel Classification:** C1;G3;M1

## 1. INTRODUCTION

All activities after the listing of the company still need financial support. It is possible to raise funds through the issuance of equity securities; that is, seasoned equity offerings (SEOs). According to the pecking order model or the discussion of Ross (1977) and Scholes (1972), the issuance of equity securities can be regarded as a signal of subsequent underperformance. Previous studies have indicated that investors who invest in SEOs often exhibit excessive and irrational optimism. This optimism increases investor willingness to purchase stocks at higher prices causing temporary overvaluations. Moreover, managers who are able to determine when the market is willing to pay more for their stocks will use this opportunity for stock issuance. In either case, after clarifying the actual conditions of the issuing companies, investors eventually realize the overvalued price and will engage in corrective action resulting in poor long-term stock performance thereafter.

As pointed out by Jensen and Meckling (1976), the dilution of insider control after issuance is associated with increasing agency costs. Agency costs increase as the separation of ownership and control after issuance leads to greater conflict between managers and shareholders.

In addition, the inability of companies to utilize accumulated capital properly can produce agency problems. This tunneling and mismanagement damages firm value, as well as the wealth of stockholders.

Governance mechanisms, by design, can eliminate the agency problem between the agent and the principal and reduce inefficiencies (Cadbury, 1992; Shleifer and Vishny, 1997; Huang and Tompkins, 2010). If corporate governance is responsible for safeguarding functions, it must be effective in controlling agency problems to improve firm performance after issuance. As demonstrated in previous studies, although corporate governance can increase profits and benefits and reduce inefficiencies, companies that employ a third party to monitor activities (external governance) can better resolve agency problems and improve long-term operating performance. Jensen (1993) suggests that the primary governance mechanism should be external companies because of internal governance mechanisms failed in the 1970s and 1980s. Through external governance monitoring mechanisms, corporations can mitigate agency problems and reduce the information asymmetry between the corporation and investors. Effective corporate governance practices may also increase the value of issuing firms. However, evidence surrounding the impact of governance on issuing firms' performance is mixed and inconclusive. Extensive literature has documented the beneficial role of effective governance in improving performance of SEOs (Becker-Blease and Irani, 2008; Kim and Purnanandam, 2009; Dbouk and Ismail, 2010).

Yet, contrary results also appear in the literature. Craswell, Taylor, and Saywell (1997) could not find any relationship between firm performance and either insider or institutional ownership for SEOs. Linden and Matolcsy (2004) concluded that there is no reliable evidence that corporate governance is related to operating or financial performance. Moreover, other studies support the view that a firm's governance structure is endogenously determined. Factors such as managerial ownership (Himmelberg, Hubbard, and Palia, 1999), board characteristics (Hermalin and Weisbach, 2003), and ownership concentration (Bushman, Piotroski, and Smith, 2004) are products of the firm's organizational and economic environments. In addition to examining the "direct" effects of governance structure on firm performance, we establish an analysis of moment structure (AMOS) setting by including the mediating variable of agency costs into the association between corporate governance and post-SEO performance. Much has been written concerning the benefit of corporate governance on firm performance through the reduction of agency costs. Meltem (2009, 60) states that, "*After the IPO, the evolution of internal corporate governance mechanisms are expected to reduce agency costs by aligning the interests and help to mitigate the negative effects of increasing agency costs on the long-term firm performance.*" Lippert and Rahman (1999), Ang, Cole, and Lin (2000), Klapper and Love (2004), and Chi and Lee (2010) also make similar statements.

Accordingly, one may intuit that the reduction of agency costs is the most critical gateway for better corporate governance to enhance post-SEO performance. However, the literature does not appear to address this issue with its empirical research.

The objective of this study is to adopt AMOS when analyzing the influence of external corporate governance on post-SEO performance and in determining whether agency costs exist as a mediating variable between them. We hypothesize that the mediating role of decreasing agency costs is crucial to the causal relationship between external corporate governance and post-SEO underperformance. The failure to address agency costs as a mediating variable could be one reason for the inconclusive findings in the related literature.

The mediating effect refers to the mediating mechanism between the independent and dependent variables. Baron and Kenny (1986) contend that three conditions must be satisfied for a mediating variable in a regression: 1) there is a significant correlation between the independent and mediating variables, 2) there is a significant correlation between the mediating variables and the dependent variable, and 3) the inclusion of the mediating variable decreases the strength of the direct relationship between the independent and dependent variables. If, after the inclusion of a mediating variable, the direct effect between the independent and dependent variables remains statistically significant, it results in a partial mediating effect. However, if the direct effect becomes insignificant, the result is a full mediation effect.

As a Structural Equation Model (SEM), AMOS can express the relationship between independent and dependent variables, but differs from multivariate analysis of variance and the standard correlation analysis in that it only allows for single relationship dependent and independent variables. In other words, while a variable may be a dependent variable (agency costs) of another variable (corporate governance), is also the independent variable for another variable (performance after issuance). A series of structural equation models can be used to analyze the complex causal relationships (Hair, Anderson, Tatham, and Black, 1998).

This study focuses on a SEO sample because it is important to assess how better external governance mechanisms enhance SEO performance. To estimate the relationship between different variables, the study applies the AMOS approach to analyze U.S. SEOs from 2000-2009. The empirical results indicate that those SEO companies who employ external corporate governance for monitoring achieve optimal or superior long-term operating performance. Controlling for agency costs is a significant aspect or factor in employing external corporate governance to improve the long-term operating performance of SEO companies.

In sum, this research contributes to the literature in the following ways: 1) it strives to provide in-depth evidence that agency problems account for the underperformance SEOs; 2) it provides a comprehensive analysis of the relationship between external corporate governance and firm performance after SEOs. By taking into account the possible endogeneity among variables, relationship tests in an AMOS setting provide more reliable results than ordinary causality models.

Therefore, it expands the research perspectives for external corporate governance, SEOs underperformance, and agency theory; and 3) by demonstrating that better external corporate governance adds value to shareholder wealth in the issuing context, we contribute to the line of research that examines the desirability of external corporate governance rules on offering firms.

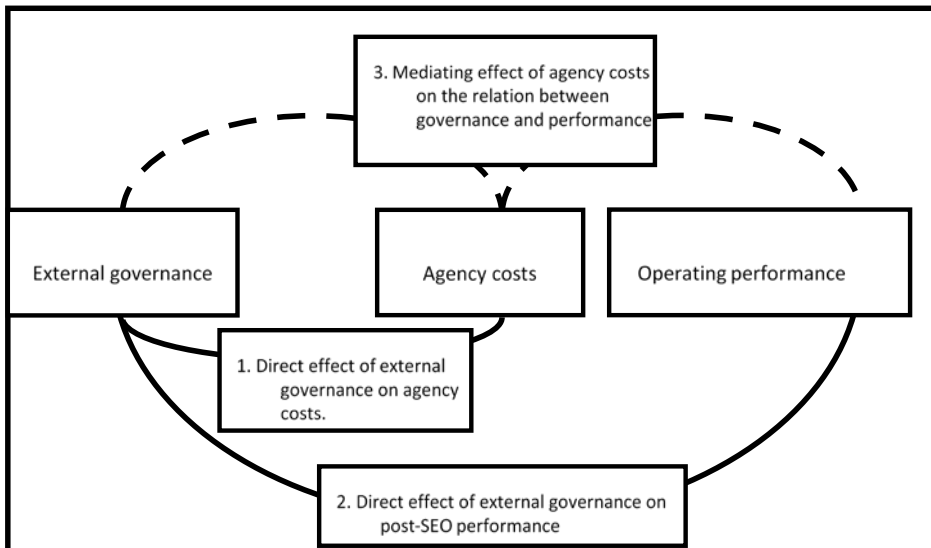
The next section provides brief literature review, research framework in a figure and the hypotheses designed to test them. Section III describes the research method, variables definitions, and the sample, while Section IV provides our conclusions.

## **2. LITERATURE REVIEW AND RESEARCH HYPOTHESES**

Loughran and Ritter (1995) and Spiess and Affleck-Graves (1995) are among the first to demonstrate that returns to U.S. firms following SEOs are significantly lower than their non-issuing counterparts for up to five years. A great deal of the empirical research indicates that equity returns may exhibit negative effects after SEOs (Dann and Mikkelson, 1984; Asquith and Mullins, 1986; Eckbo, 1986; Kalay and Shimrat, 1987; Barclay and Litzenberger, 1988; Patel, Emery, and Lee, 1993; Loughran and Ritter, 1997).

Jain and Kini (1994) demonstrate that declines in financial performance after listing were correlated with agency problems. Bessler and Stefan (2006) describe that raising new equity, in either the primary or secondary market, typically leads to long run underperformance suggesting information asymmetry or agency problems. Jo and Kim (2008) review the financial performance of firms in the SEO market and find the theory of agency to be one of the most important areas in the study of corporate finance. Wang, Chen, and Huang (2008) examine the impact of the price performance of SEOs. They support the agency theory in the sense that bookbuilding offers a mechanism to strengthen the external monitoring provided by blockholders, which can subsequently reduce agency costs and increase the share price. Therefore, some monitoring costs are incurred by the principals to ensure that the agent acts in their best interests, while bonding costs are incurred by the agent.

Singh and Davidson III (2003) determine that management ownership can significantly decrease agency conflict by increasing their asset utilization rate and reducing discretionary costs. Lins (2003) confirmed that agency costs can be effectively reduced through external shareholder protection mechanisms. Davidson, Bouresli, and Singh (2006) find that companies with strict market supervision and complete accounting transparency can reduce the occurrence of agency problems. Wang et al. (2006) support the agency theory in the sense that bookbuilding offers a mechanism to strengthen external monitoring provided by blockholders, thereby reducing agency costs. The research structure, as well as the three study objectives, is presented in Figure 1. As illustrated, external corporate governance is the exogenous variable (independent variable) in the model and agency costs and long-term corporate operating performance after SEOs are the endogenous variables that are divided into a mediating variable (agency costs) and a dependent variable (operating performance).

**Figure 1: Research Framework**

Based on the reasoning presented in the Introduction section, the following hypotheses are proposed, while test methods are discussed in the following section:

- H1: External governance is effective in decreasing the agency costs of issuing firms.
- H2: External governance is effective in enhancing long-term operating performance after SEOs.
- H3: Reducing agency costs has a mediating effect on the correlation between external corporate governance and SEOs' operating performance.

### 3. RESEARCH METHOD

In an AMOS setting, this study first employs confirmatory factor analysis (CFA) to obtain the representative observable variables for each latent variable and to establish a completely fit model. Then, we proceed with the analyses of direct and mediating effects among latent variables.

#### 3.1. The AMOS (SEM) Setting

Joreskog and Sorbom (1993) point out that with multicollinearity among independent variables, SEM analysis is a more valid method for estimating a model than a simple regression method. It simultaneously solves correlations between a series of multiple independent and dependent variables and considers increasing vital causal paths through the appropriate measurement model or the level of fitness of the measurement model. When compared to general regression models, SEM structure (as does AMOS) can use measurement variables to assess latent variables that are difficult to observe directly, while identifying the relationship between each latent and measurement variable.

The total effect of an independent variable on the dependent variable can be divided into two parts: 1) the indirect effect that refers to the independent variable's effect on the dependent variable through a mediating variable, and 2) the direct effect that refers to the independent variable's effect on the dependent variable after controlling for the indirect effect (Baron and Kenny, 1986; Stone and Sobel, 1990; MacKinnon et al., 2002). According to MacKinnon, Lockwood, Hoffman, West, and Sheets (2002) and Preacher and Hayes (2004), the mathematically formulated Sobel test should first be used to determine whether the indirect effect is significant to adhere more closely to the meaning of mediating effect. In the Sobel test, a mediating effect exists when the Z value in Equation (1) is greater than 1.96:

$$Z = a * b / SE_{ab}$$

where  $a$  and  $b$  are non-standardization values, and  $SE_{a^2}$  and  $SE_{b^2}$  are standard errors of  $a$  and  $b$ .

### 3.1.1. Confirmatory Factor Analysis (CFA) and Measurement Reliability

This study performs a CFA on the relevant variables to test the representativeness of the latent variables and to establish the complete fit for the research model. The CFA was conducted on external governance, agency costs, and operating performance to eliminate inefficient observation variables and to ensure that each factor complied with the optimum fit indicators.

Micceri (1989) indicated that when the SEM method is used to analyze data, data must be corrected and transferred in violation of the normality assumption to ensure reliability. To avoid the trouble of negative definition in the SEM model, we refer to the practice of Abarbanell and Bushee (1998). This study adjusted the scales and units of different observed variables, sorted the raw data into deciles, and the converted data is ranged from 1-10. Chou, Bentler, and Satorra (1991) and Hu and Bentler (1995) point out that when the multivariate normal assumption does not hold, the standard errors and  $t$  values of the parameters estimated in a SEM model will be biased leading to estimated results with significant distortions. According to Gilford (1954), Cronbach's  $\alpha$  is used to indicate the measurement reliability. Reliability is high when the indicator is greater than or equal to 0.70, acceptable when the indicator is from 0.35-0.70, and low when the indicator is less than 0.35.

### 3.1.2. Goodness-of-Fit Measurement

An overall goodness-of-fit test is conducted to evaluate the suitability of the model. Goodness-of-fit is a model quality test that is used to examine whether the empirical results are consistent with the theoretical model. Thirteen model fitness tests, as well as their descriptions and test statistics, are summarized in Appendix 1. The evaluation criteria are broadly divided into absolute fit indices, comparative fit indices, and parsimonious fit indices and are detailed below. The absolute fit measures include the chi-square test ( $\chi^2$ ), the standardized root mean square residual (*SRMR*), the root mean square error of approximation (*RMSEA*), the goodness-of-fit index (*GFI*), and the adjusted goodness-of-fit index (*AGFI*).

The comparative fit measures include the normed fit index (*NFI*), the non-normed fit index (*NNFI*), the incremental fit index (*IFI*), the comparative fit index (*CFI*), the and relative fit index (*RFI*). The parsimonious fit measures include the parsimonious normed fit index (*PNFI*), the parsimonious goodness-of-fit index (*PGFI*), and Hoelter's critical N (*CN*).

### **3.2. External Governance (ECG): Independent Variable**

This study includes three variables to measure external corporate governance: 1) analyst coverage, 2) institutional shareholding, and 3) auditor reputation.

#### **3.2.1. Analyst Coverage (ACOV)**

Chung and Jo (1996) find that securities analysts can monitor corporate management by revealing business information to the market, thereby reducing agency costs. Das, Guo, and Zhang (2006) suggest that analyst coverage significantly predicts the cross-sectional variation in stock returns. For the SEO sample, *ACOV* is the natural logarithm of the number of analysts that provide one-year-ahead earnings forecasts during the six-month period leading up to the SEO announcement.

#### **3.2.2. Auditor Reputation (AR)**

Titman and Trueman (1986) confirm that superior or higher quality accounting firms provide more accurate information to the users of financial statements. Palmrose (1984) found that companies can reduce the influence of agency costs by employing high quality accounting firms to run audits. Following prior research, *AR* is a dummy variable equal to one if the auditor of the sample firms is a member of the Big-Four (e.g., Ernst and Young, Deloitte and Touche, KPMG, and PWC) and zero otherwise.

#### **3.3.3. Institutional Shareholding (INS)**

Pound (1988) finds that institutional investors are well suited to provide the professional expertise, technology, and costs required for monitoring management. Economies of scale allow them to spend fewer resources on monitoring as compared to minority shareholders. Therefore, increasing institutional shareholdings can effectively decrease the agency problem and improve corporate operating performance. O'Brien and Bhushan (1990) suggest that a greater number of shareholdings owned by institutional investors enhances performance. *INS* is measured as the percentage of shares held by institutional investors (year-end).

### **3.3. Agency Costs (AC): Mediating Variable**

Agency costs resulting from bonding activities are contractual limitations on the manager's decision-making power. Agency costs resulting from monitoring involve auditing, formal control systems, budget restrictions, and incentive compensation systems. In addition, some residual loss, which is the effective loss related to the state-contingent future of the firm, results despite the bonding and monitoring costs incurred. The sum of the monitoring, bonding and residual costs is the agency cost. We include four variables to proxy for agency costs: 1) asset turnover ratio, 2) sales and management expenditures, 3) leverage, and 4) operating expenses.

### **3.3.1. Asset Turnover Ratio (ATR)**

This ratio can be interpreted as an asset utilization ratio that indicates how effectively management deploys the firm's assets. For example, a low asset turnover ratio may indicate poor investment decisions, insufficient effort, the consumption of perquisites, and the purchase of unproductive products. Firms with low asset turnover ratios are expected to experience high agency costs between managers and shareholders. A similar proxy for agency costs is also used in the studies of Ang et al. (2000), Singh and Davidson III (2003), and Fleming, Heaney, and McCosker (2005).

### **3.3.2. Sales and Management Expenditures (SME)**

To understand management's discretionary spending, Singh and Davidson III (2003) continue the research of Ang et al. (2000) by measuring agency costs with sales and management expenditures rather than operating expenses. Their results indicated that management ownership decreases the conflict between owners and agents by enhancing asset usage and reducing discretionary spending. *SME* is the ratio of selling, general, and administrative expenses to sales (year-end).

### **3.3.3. Leverage Ratio (LEV)**

Jensen (1986) finds that an increased debt ratio can decrease the conflict of interest between managers and shareholders. However, it also increases interest costs and the risk of bankruptcy, most likely deepening the debt agency problem between shareholders and creditors. Brander and Spencer (1989) determine that the increased risk of bankruptcy created by a rising level of debt negatively affects corporate operating performance. Furthermore, where no mechanism exists to resolve the debt agency problem, the greater the debt ratio, the higher the debt agency costs if an agency problem develops. This will completely offset the tax savings benefits of debt and reduce corporate operating performance. Agrawal and Knoeber (1996) suggest that in addition to the proportion of outside directors and external market pressure, debt ratio is negatively correlated with firm performance. Kim and Maksimovic (1990) also support the leverage as a measure of agency costs. *LEV* is measured as total interest bearing debt to total assets (year-end).

### **3.3.4. Operating Expense (OE)**

Ang et al. (2000) measured agency costs by demonstrating that the higher the operating expense ratio, the more likely a manager is to use special privileges or information advantages to incur expenses and increase spending without adding value. *OE* is the ratio of a property's operating expense to gross operating income (year-end).

## **3.4. Operating Performance (LOP): Dependent Variable**

Four variables are employed to proxy for operating performance of issuing firms: 1) operating cash flows (*OCF*) (Jain and Kini, 1994,1995; Mikkelsen, Partch, and Shah, 1997), 2) operating return on assets (*OPROA*) (Jain and Kini, 1994; Barber and Lyon, 1997; Loughran and Ritter, 1997; Teoh , Welch, and Wong, 1998), 3) net profit margin (*NPM*), and 4) ratio of earnings before interest and taxes to net sales (*REBITNS*) (Loughran and Ritter, 1997).



When compared with other profitability measures, *OPROA* and *OCF* are more powerful measures of operating performance as they are less likely to be affected by leverage, extraordinary items, and other discretionary items (Barber and Lyon, 1996). The *OPROA* provides a measure of the efficiency of asset utilization. Therefore, following Jain and Kini (1994), Barber and Lyon (1996), Loughran and Ritter (1997), Teoh et al. (1998), this study also employs *OPROA* and *OCF* as measures to proxy for the operating performance of issuing firms. *OPROA* is the operating income (before depreciation and taxes) divided by total quarterly assets (year-end), where operating income equals net sales less the cost of goods sold and selling, general, and administrative expenses before depreciation, depletion, and amortization. *OCF* is the ratio of operating cash flow to current liabilities (year-end).

Loughran and Ritter (1997) found that corporate operating performance almost peaked during periods of seasoned equity, but then gradually decreased after offerings. Of the six operational indicators used in the study, four indicated improved operating performance before the offering implying that the stock market is overly optimistic regarding the prospect of SEO corporations. The six indicators used in Loughran and Ritter (1997) were net profit margin (*NPM*), ratio of earnings before interest and taxes to net sales (*REBITNS*), the return rate on assets, the market-to-book ratio, capital expenditures and the R&D expense ratio of total assets, and the pre-tax, depreciated, pre-amortized net operating profit (including interest income) to total asset ratio.

*NPM* is the after-tax, net profit divided by net sales (year-end). *REBITNS* is the pre-tax, depreciated, pre-amortized net operating profit plus interest income divided by net sales (year-end).

### **3.5. Sample and Data**

The sample is comprised of U.S. SEOs from 2000-2009 from the *Security Data Company's (SDC)* new issues database. The sample period ends in 2007 to allow for the availability of operating and stock data for the post-SEO period. As in previous research, the following observations are excluded from the final sample: 1) issuing firms from the financial insurance industry (SIC Codes 6000-6999), 2) best efforts offers, closed-end funds, ADRs, REITs, and offerings with offer prices below \$5.00 per share, 3) SEOs within a three-year period after listings, and 4) issuing firms with insufficient data.

Governance-related data are obtained from the *Investor Responsibility Research Center (IRRC)* and the *Institutional Brokers' Estimate System (I/B/E/S)* databases. Both agency costs and operating performance data are obtained from the Compustat database.

## **4. EMPIRICAL RESULTS**

### **4.1. Descriptive Statistics and Factor Loadings of SEO Samples**

CFA was conducted on the external corporate governance, agency costs, and long-term operating performance of SEO companies to eliminate inefficient observation variables and to ensure that each factor complied with the optimum fit indicators. The 14 observation variables of the SEO companies were then incorporated into the model. The variables of external governance are *ACOV*, *AR*, and *INS*.

The dimensions of agency cost include *ATR*, *SME*, *LEV* and *OE*. The dimensions of long-term operating performance are comprised of *OCF*, *OPROA*, *NPM* and *PEBITNS*.

Table 1 presents the fully standardized factor loadings and descriptive statistics of the SEO companies in three dimensions. After eliminating inefficient observation variables, the results for SEO companies indicate that: 1) factor loading of each variable reached significance at the 5% level; 2) Cronbach's  $\alpha$  of each dimension reached a minimum reliability of 0.35, increasing the consistency of the model estimation; and 3) for normality assumptions, skewness for the variables indicate that the absolute value is less than three, and the kurtosis demonstrates that the absolute value is less than eight. Together, these indicators suggest that the variables comply with normality assumptions.

**Table 1: Descriptive Statistics of SEO Sample**

	Variable	Factor Loading	Cronbach's $\alpha$	Mean	SD	Sk	Kur
<i>ECG</i>	<i>ACOV</i>	0.158**	0.411	0.283	0.327	0.920	0.189
	<i>AR</i>	0.226**		0.951	0.216	-2.189	5.551
	<i>INS</i>	0.752***		11.890	11.480	0.860	-0.869
<i>AC</i>	<i>ATR</i>	0.205***	0.718	-0.041	0.232	-1.257	0.946
	<i>SME</i>	0.405***		0.280	0.274	1.556	2.623
	<i>LEV</i>	0.095***		1.536	2.175	0.898	0.446
	<i>OE</i>	0.550***		0.432	0.293	2.226	6.642
<i>LOP</i>	<i>OCF</i>	0.446***	0.865	-0.520	1.414	1.158	1.162
	<i>OPROA</i>	0.644***		-0.663	1.364	-1.602	2.568
	<i>NPM</i>	0.024***		-0.098	0.292	-1.671	1.264
	<i>REBITNS</i>	0.958***		0.736	0.7361	-1.790	1.811

The sample employed in this study is comprised of 246 annual observation values of SEOs in the U.S. (excluding the finance and insurance industries). External governance data were obtained from *IRRC* and *I/B/E/S*, and information regarding agency costs and long-term operating performance were retrieved from Compustat. For these variables, the factor loadings are coefficients under full standardization. \*\*\* indicates that  $\alpha$  reached a level of significance at 1%, while \*\* indicates that  $\alpha$  reached a level of significance at 5%. Cronbach's  $\alpha$  is the reliability indicator, and a Cronbach's  $\alpha > 0.35$  indicates that the reliability test was satisfied. Additional variables include External Corporate Governance (*ECG*), Agency Costs (*AC*), Long-Term Operating Performance (*LOP*), Stand Deviation (*SD*), Skewness (*Sk*), and Kurtosis (*Kur*).

#### 4.2. Goodness-of-Fit Measurement in the SEM Model

Table 2 reports the model's goodness-of-fit test conducted concerning the direct effect that external corporate governance has on agency costs and long-term operating performance after SEOs. Excluding Cronbach's  $\alpha$  values, which are significant due to the influence of the sample size, the calculation results indicate that the remaining indicators reached the standard value. This suggests that the overall model had a good fit.

The study also measured the goodness-of-fit of the model for the mediating effect that agency costs had on “the influence of external corporate governance on long-term operating performance” after issuance. The results indicate that, excluding the Cronbach’s  $\alpha$  values, that are significant due to the influence of the sample size, and the *CN* that cannot adequately reflect the sample data due to the influence of the sample scale, the remaining indicators reached the standard value. This outcome implies that the overall model has a good fit.

**Table 2: Goodness-of-Fit Test for SEOs**

Indicator	Acceptable Threshold Levels	Direct Effect of Governance on Agency Costs	Direct Effect of Governance on Post-SEO Performance	Mediating Effect of Agency Costs on the Relation Between Governance
Absolute fit indices				
$\chi^2$	P<0.01	55.145 (P=.002)	55.844 (P=.003)	185.971 (P=.000)
<i>SRMR</i>	≤0.08	0.059	0.053	0.077
<i>RMSEA</i>	≤0.08	0.061	0.059	0.083
<i>GFI</i>	≥0.9	0.96	0.958	0.916
<i>AGFI</i>	≥0.9	0.923	0.923	0.852
Comparative fit indices				
<i>NFI</i>	≥0.9	0.893	0.94	0.892
<i>NNFI</i>	≥0.9	0.914	0.956	0.882
<i>IFI</i>	≥0.9	0.946	0.971	0.924
<i>CFI</i>	≥0.9	0.944	0.971	0.922
<i>RFI</i>	≥0.9	0.854	0.91	0.846
Parsimonious fit indices				
<i>PNFI</i>	≥0.5	0.575	0.627	0.588
<i>PGFI</i>	≥0.5	0.506	0.523	0.523
<i>CN</i>	>200	221	224	117

If the measurement standard is greater or less than the acceptable threshold levels in the table, we conclude that the model's fit is good or acceptable.

#### 4.3. Direct Effect

After the CFA verification enabled the variables of the SEO companies to sufficiently explain the various dimensions and become appropriately reflected in the model, direct effect analysis was performed. Table 3 demonstrates the direct and mediating effects of SEO companies. The first two verification conditions of testing mediating effect are the direct effect of external corporate governance on agency costs and long-term operating performance.

**Table 3: Direct Effect and Mediating Effect of SEO Companies**

	<i>NSV</i>	<i>T Statistics</i>	<i>SE</i>	
<i>ECG to AC</i>	-0.204	-0.020	0.009	
<i>ECG to LOP</i>	0.393***	2.851	0.127	
	<i>NSV</i>	<i>T Statistics</i>	<i>SE</i>	<i>Sobel Test</i>
<i>ECG to AC</i>	-0.163	-1.445	0.113	-
<i>ECG to LOP</i>	0.299***	2.709	0.122	2.000**
<i>AC to LOP</i>	-0.397***	-5.922	0.067	-

Variable include Non-Standardization Value (*NSV*), Standard Error (*SE*), External Corporate Governance (*ECG*), Agency Cost (*AC*), and Long-Term Operating Performance (*LOP*). \*\* indicates significance at the 5% level. \*\*\* indicates significance at the 1% level. The Sobel test equation is defined as  $Z = a*b/SE_{ab}$  where  $a$  and  $b$  are non-standardizing values.  $SE_{ab}$  is standard errors.

According to the direct effect results in Table 3, the direct effect confirms similar results for SEO companies. That is, external corporate governance also has a negative correlation (with a coefficient of -0.204 and a  $t$ -value of -0.020). We also compare the non-standardized coefficients (*NSC*) of SEOs for external corporate governance and agency costs. Moreover, the direct effect of external corporate governance on long-term operating performance in SEO companies indicates a significant and positive correlation (with a coefficient of 0.393 and a  $t$ -value of 2.851). Therefore, SEO companies should employ external corporate governance to enhance monitoring and achieve superior long-term operating performance. Our findings confirm the results of Cremers and Nair (2005) that external factors link corporate governance to firm value.

#### 4.4. Mediating Effect of Agency Costs

The data regarding the mediating effects presented in Table 3 were used for testing the third condition. With the addition of the mediating variable, the strength of the direct correlation between the independent and the dependent variables declines as proposed by Baron and Kenny (1986). Furthermore, to increase the accuracy and rigorousness of the mediating effect test, the study employed the  $Z$ -value of the Sobel test, as suggested by MacKinnon et al. (2002) and Preacher and Hayes (2004), to examine the mediating effect.

The results in Table 3 show that the coefficient strength of external governance subsequently exhibited a significant decrease from 0.393 to 0.299 and complied with our third condition. The  $Z$ -value of the Sobel test for external governance was 2.000, which is in line with Jensen's (1986) suggestion that the main cause of poor long-term operating performance for SEO companies is agency problems. This proposes that firms should devise strategies to reduce costs over the long run. (Himmelberg et al, 1999). After we incorporate agency costs as a mediating variable, we find that agency costs are included in the effect of external corporate governance on long-term operating performance. The results are similar to that of Klapper and Love (2004) and Chi and Lee (2010). They conclude that better corporate governance is highly correlated with improved operating performance and those firms that have greater agency problems need to compensate with stricter governance mechanisms.

In other words, the use of external corporate governance to reduce agency costs is a crucial method for improving the long-term operating performance of SEO companies. As previously mentioned, good corporate governance can lead to a higher value of issuing firms for SEOs. Our empirical results support this contention. Mitigating agency costs play an important mediating role in external corporate governance and SEOs performance. It can aid in the understanding of the mixed or inconclusive results of previous studies that omit agency costs a mediating variable. It provides greater evidence that agency problems account for post-SEO underperformance as Jain and Kini (1994) and Ritter and Welch (2002) have suggested. By demonstrating that good governance adds value to shareholder wealth by reducing agency costs in the issuing context, this study contributes to the line of research that examines the desirability of governance rules on offering firms.

## **5. CONCLUSIONS**

The poor performance of post-SEO firms has attracted considerable research interest. The purpose of this study is, taking into account a range of external governance factors, to adopt AMOS when analyzing the influence of corporate governance on the underperformance of SEO firms and in determining whether agency costs exist as a mediating variable between them. After issuance, the evolution of governance mechanisms are expected to reduce agency costs by aligning interests and to help mitigate the negative effects of increasing agency costs on long-term firm performance. This research examines the direct effect of external corporate governance on agency costs, followed by the influence of corporate governance on firm performance. To test the existence of poor administrative mitigating functions of external corporate governance in reducing agency costs, we then examine the mediating effect of reducing agency costs on the influence of external corporate governance on performance. This is the first study concerning the mediating effect of agency costs on the association between external corporate governance and SEO performance. A mediating effect can easily lead to an inability to determine whether the independent variable (external corporate governance in this study) is functioning effectively. The relationship between variables can only be clarified when tests and assessments of the mediating effect are incorporated. While this study adds another set of findings to the literature on post-SEO deterioration in operating and stock performance, it also examines whether good external governance mechanisms enhance SEO's performance. This study builds on the existing research concerning the influence of external corporate governance on SEO's performance to provide a clear understanding of the relationship between the two. Specifically, the study findings determine that the agency problem is crucial when explaining the decline in SEO's operating performance. This discovery provides support for the view that post-SEO deterioration in performance is, at least, in part, attributable to an attempt at entrenchment. Additionally, the poor administrative mitigating functions of external corporate governance can decrease agency costs, thereby improving SEO's performance. Our empirical results generate straight forward evidence that good external governance structures can mitigate the agency problem and increase the value of SEO firms. Moreover, the reduction of agency cost play role only in SEO firms with poor post-issue performance. This finding provides indirect, but strong evidence that post-SEO underperformance is largely a result of the agency problem.

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**Appendix 1: Goodness-of-Fit Indicators**

Indicator	Test Statistics	Descriptions
<i>Absolute Fit Indices</i>		
$\chi^2$	$F_{ML} * (N - 1)$	Assesses the magnitude of discrepancy between the sample and fitted covariance matrices.
SRMR	$\sqrt{\sum (S_{jn} - I_{ij})^2 / q}$	Standardized version of the RMR. Easier to interpret due to its standardized nature.
RMSEA	$\sqrt{\hat{\delta}_M / df_M (N - 1)}$	Has a known distribution. Favors parsimony. Values less than 0.03 represent excellent fit.
GFI	$1 - V_{res} / V_{total}$	Scaled between zero and one with higher values indicating better model fit. This statistic should be used with caution.
AGFI	$1 - (1 - GFI)[v(v + 1) / 2df_M]$	Adjusts the GFI based on the number of parameters in the model. Values can fall outside the 0-1.0 range.
<i>Comparative Fit Indices</i>		
NFI	$1 - \chi^2_M / \chi^2_B$	Assesses fit relative to a baseline model that assumes no covariances between the observed variables. Has a tendency to overestimate fit in small samples.
NNFI	$[\chi^2_B - (df_b / df_M) \chi^2_M] / (\chi^2_B - df_B)$	Non-normed values can fall outside the 0-1 range. Favors parsimony. Performs well in simulation studies.
IFI	$(\chi^2_B - \chi^2_M) / (\chi^2_B - df_M)$	Should be equal to or greater than .90 to accept the model. IFI can be greater than 1.0 under certain circumstances.
CFI	$1 - \hat{\delta}_M / \hat{\delta}_B$	Normed, 0-1 range.
RFI	$1 - (\chi^2_M / df_M) / (\chi^2_B / df_B)$	The relative fit index, the mean square metric pioneered by the TLI, is retained in the RFI. It is not guaranteed to vary from zero to one.
<i>Parsimonious Fit Indices</i>		
PNFI	$(df_M / df_B) NFI$	This index also adjusts for degrees of freedom; however, it is based on the NFI.
PGFI	$[df_M / ((v(v + 1) / 2))] GFI$	The PGFI is based on the GFI by adjusting for loss of degrees of freedom.
CN	$((2.58 + (2 df_1)^{**2})^{**5}) / ((2chisq) / (n-1)) + 1$	Hoelter's N should be greater than 200. AMOS computes Hoelter's N for the .05 level. N is the sample size.

Where  $FML$  is the value of the statistical criterion minimized in the ML estimation;  $(N - 1)$  is the overall degrees of the freedom in the sample;  $S_{jn} - I_{ij}$  is the residual correlation matrix (including the variances);  $q$  is the number of residuals;  $q = p(p+1)/2$ ;  $p$  is the number of variables;  $\hat{\delta}_M = \max(\chi^2_M - df_M, 0)$ ;  $\hat{\delta}_M$  and  $\hat{\delta}_B$  estimate the non-centrality parameter of a non-centrality chi-square distribution for the researcher's model and the baseline model, respectively;  $v$  is the number of observed variables;  $V_{res}$  is the unexplained variability in the sample covariance matrix;  $V_{tot}$  is the total variability in the sample covariance matrix;  $\chi^2_M$  and  $df_M$  are the chi-square and the degrees of freedom for the null model, respectively, and  $\chi^2_B$  is a substantive model of interest.