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ANALYZING THE LINK BETWEEN AGENCY PROBLEMS, GOVERNANCE AND CONTROL ATTRIBUTES FOR PAKISTAN

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Abstract

This research attempts to analyze the relationship between agency, control and corporate governance attributes for a sample of 267 firms listed on the Pakistan Stock Exchange (PSX) from 2005 to 2008. The results show that a) Pakistani listed firms are facing high agency costs problems in contrast to established markets. b) Factors are observed important to having strong effect on mitigating agency costs levels: corporate dividend policy, degree of board independence, and institutional ownership. c) Corporate governance factors reduce discretionary expenditure ratio, increase assets utilization ratio and free cash flow ratio. d) Control variables increases the asset utilization ratio and decreases the free cash flow and increases the managers' performance (Tobin's Q ratio). e) Ownership attributes regulate free cash flow and decrease the discretionary expenditure ratio. The outcomes of this research lead to the proposed use of recommended governance, control and ownership attributes to overcome agency problems and a sound policy for better corporate governance (better management of agency cost issues) for listed firms.

JEL classification: G30, G32
Keywords: corporate governance, performance, agency cost, ownership, pakistan stock exchange

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Introduction

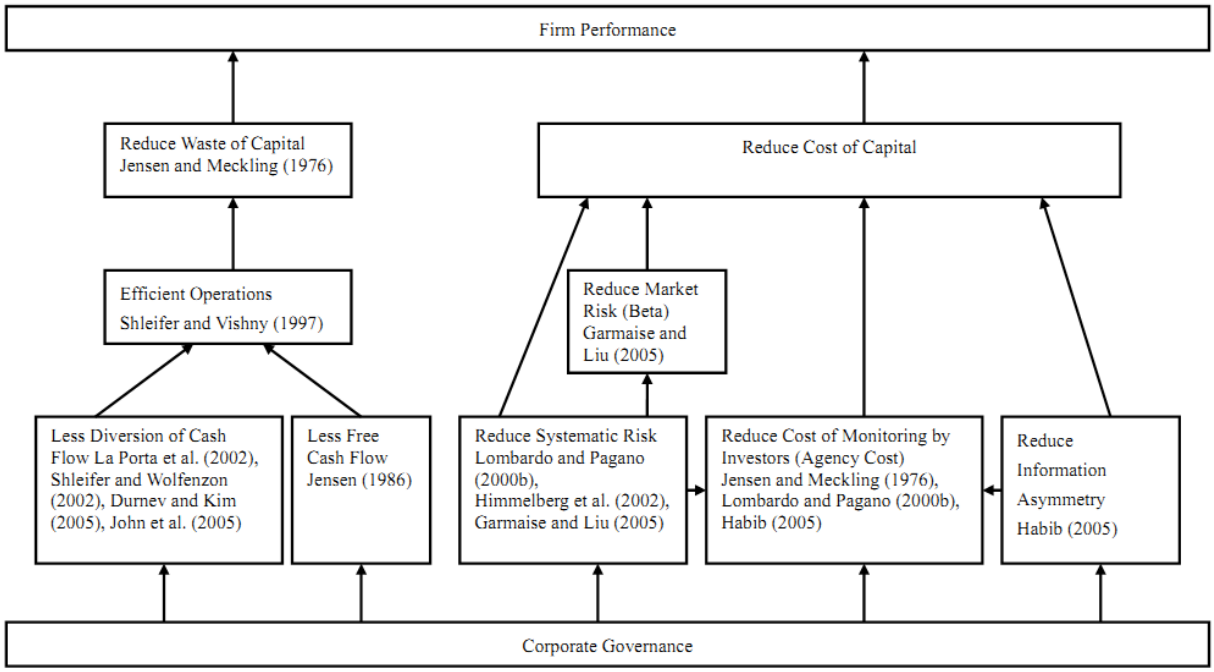
Corporate governance is a set of processes and structure which enhance shareholder wealth by facilitating the creation of shareholder value through management of corporate affairs. Good corporate governance principles improve the economic efficiency by enhancing the performance of the company and having a strong influence on business decisions. Corporate governance offers benefits for the directors and administrators to follow the aims which are in the best interests of the stockholders (Yermack, 1996) and provide the structure which monitors the relationship among stakeholders, directors, administration and other participants (Shleifer & Vishny, 1986) and leads the firms to control the cost of capital and transactions and encourage the firm to use resources more efficiently (Jensen & Meckling, 1976).

Different dimensions of corporate governance are discussed in the literature in which some studies focus on performance (Buallay, Hamdan, & Zureigat, 2017), financial information quality (Tran, 2014), ownership structure (Tariq & Rasheed, 2018), or board structure (Velte, 2017) and others analyze the role of debt, capital structure (Bushra, 2017) and dividend policy (McGuinness, Lam, & Vieito, 2015).

The association among corporate governance and performance of the firms can be positive, negative or none; as Morck, Shleifer and Vishny (1989) found a positive connection amongst governance and performance, while Lehman and Weigand (2000) conclude a negative relationship. On the other hand, many studies conclude no connection among performance and governance (Demsetz & Villalonga, 2001). Luo (2006) describe how corporate governance affects firm performance through a figure shown below describing two main factors (i) controlling the amount of wasted capital and (ii) reducing the cost of capital which includes agency cost, which affects the firm performance.

In Pakistan corporate agency problems are increasing due to growing business diversification, separation of control and ownership, and division in the industry and firms which leads to an effect on the performance of the firms. The Pakistani market is an interesting one to examine the issue of agency, as it is perceived that there are comparatively higher-level agency-related issues. The perception is founded on the basis of the facts about PSX, such as market capitalization structure is concentrated among the larger listed companies, the size of PSX is considered smaller than other corporate sectors like in the USA, UK, India, China and Japan, also there are lower levels of foreign investment, and an overall small pool of available labor for managers and directors.

Figure 1: Corporate Governance and Firm Performance



Source: Luo, 2006

Therefore, the relationship between governance and performance is an important area for research in Pakistan, but unlike the rich pool of data available for developed countries, Pakistan lacks the availability of data and only a few quality studies have been done in the area of corporate governance. Cheema, Bari and Saddique (2003) suggest corporate governance plays a vital role in performance of firms for Pakistan. Mir and Nishat (2004) analyzed the relationship among corporate governance and firm performance and found significant association among different measures of firm performance and corporate governance. Shaheen and Nishat (2004) examined the association among governance and performance with a data set consisting of secondary and primary data sources. Javid and Iqbal (2007) reported a positive and significant linkage among the performance and quality of firm level governance. Javid and Iqbal (2008) concluded that the code of corporate governance 2002 improves the governance and decision-making processes for listed Pakistani firms. Javid and Iqbal (2010) analyzed firm performance by constructing an index of corporate governance and index of disclosure & transparency and documented a positive association among performance and ownership concentration. However, Yasser, Entebang and Mansor (2015) discovered the relation between performance measures (Return on equity and profit margin) and governance measures (board size, compensation and CEO/Chairman duality) but found results insignificant for CEO/Chairman duality.

The main focus of researches in emerging markets like Pakistan is on the area of corporate governance on the relationship between governance, performance, ownership structure and board structure. Less focus is given to studies on corporate governance and agency problems and its controlling mechanism. To get more insight in the area of corporate governance and agency problems more research is needed (Hong, 2017). To fill the gap this research tries to investigate the impact of corporate governance on agency problems.

The key importance of this research is that it addresses corporate governance and agency cost relation, by the consideration of the code of corporate governance as an agency control mechanism for firms listed on the Pakistan Stock Exchange (PSX). In the first stage of this study the level of agency cost inherent in listed Pakistani companies is examined along with the evaluation of ownership and governance attributes for reducing agency cost levels. The second stage of the study examines whether a specific code of corporate governance attribute or index of corporate governance attributes are useful for mitigating agency problems for Pakistani firms listed on the PSX.

The remainder of the study is structured as follows: the second section describes a brief review of literature. Section 3 documents the sources of data used for research. Section 4 provides the methodological approach and estimation technique used for research. In section 5 analysis of the research is performed and results are discussed in detail. Section 6 concludes the study and provides policy implications.

Theoretical Background and Hypothesis Development

Recent studies explore the importance of corporate governance and agency relation theoretically (Claessens & Yurtoglu, 2013; Tatiana & Stela, 2013; Fan, Wei & Xu, 2011) as well as empirically (Styhre, 2016; Aras & Furtuna, 2015). Three main types of agency problems are identified by Brahmadev and Leepsa (2017). Type-I is related to separation of principle and owner (agent/principle) and information asymmetry, which is widely discussed in the literature. Type-II the principle-principle problem is mainly due to decision making and earning retention and Type-III agency problem (principle-creditor) is due to risk preferences and limited earnings. Agency cost can be measured with different tools, most important are asset utilization ratio (Rashid, 2013), expense ratio (Wellalage & Locke, 2012), free cash flow interaction (Henry, 2010), dividend payout ratio (Wellalage & Locke, 2011) and Tobin's Q (El-Faitouri, 2014). Agency problems can be controlled with the help of many corporate governance attributes like managerial ownership (Rashid, 2015), executive compensation (Core, Holthausen & Larcker, 1999), debt (Paterson, 2016), or Board of directors (Hastori, Siregar, Sembel & Maulana, 2015) and dividends (Park, 2009).

Many studies have investigated the connection amongst performance and governance for developed markets (like Bhagat & Black, 2002; Anderson, Mansi & Reeb, 2004). Many channels are suggested in the literature for corporate governance effects which includes stronger shareholder rights, legal protection mechanisms and improved management structure through legislative enforcement of codes of corporate governance. Firms with

better governance structure are earning higher profits and paying higher dividends (Brown & Caylor, 2006). Yermack (1996) investigated the association amongst performance of firms and duality of Chairman-CEOs also found that firm performance is improved when the CEO is different from the chairman. Another important channel for corporate governance effects is minimizing firm level agency conflicts and reducing agency costs. Henry (2010) found that agency cost is lower for superior internal governance. The emphasis of this research is to inspect the role of corporate governance as an agency-cost reduction mechanism, and improving firm performance. Agency cost of a firm affects firm performance through affecting all the stake-holders of a firm. It is very important to safeguard the right of the stake-holders by decreasing the costs of agency related to the separation of ownership and control with the help of different governance attributes (McKnight & Weir, 2009). Agency problems, which are arising mainly due to the separation of ownership and control, may be alleviated with the help of a number of internal and external constraints. These constraints may be presence of debt (Jensen, 1986), management equity ownership (Jensen & Meckling, 1976), dividend distribution (Rozeff, 1986) and the presence of large external shareholders (Shleifer & Vishny, 1986).

The code of corporate governance points out the key governance mechanisms which include the presence of non-executive directors, CEO and chairperson duality and the setting up of board subcommittees. The magnitude of agency costs is affected by the number of corporate governance attributes which includes the size of board of directors, CEO and chairperson duality, remuneration of board members and existence of an audit and remuneration committee. Variables and hypothesis related to these governance related attributes are as follows:

Independence of the Board

It is recommended in the literature that boards should consist of a balanced number of executive and non-executive directors. Different studies show the benefit and costs of different combinations of board structures for example Brickley, Coles and Terry (1994) find that boards dominated by non-executive members work more in the favor of shareholders than boards dominated by executive directors. Rashid (2015) also found that independent board members positively improve the asset utilization of a firm. It is because the non-executive directors are the effective monitors of the decisions of the board (Fama & Jensen, 1983). Past performance is an important factor while appointing the outside directors as reputation of the directors is an important.

H1: *Agency cost will be lower if there are more non-executive directors in the board.*

Board independence is measured by the total number of independent directors in the board.

Size of Board

Board size is the measure which shows how many directors including independent directors are on the board. This will be measured by taking the natural logarithm of the total number of directors in the board. Gul, Sajid, Razzaq and Afzal (2012) and Hastori et al. (2015) concluded that the size of the board helped in controlling agency cost.

Duality of CEO-Chairperson

Many studies recommend that duality of the CEO and chairperson is not in the favor of the firm's decision-making processes because it gives one person too much power over the firm's decisions. However, some studies find out that duality does not have much impact on the performance of the firm (Weir, Laing & McKnight, 2002). Rashid (2013) uses CEO-chairperson duality to investigate the impact on agency cost.

H2: *Agency cost will be lower with the absence of duality of the CEO-Chairman.*

This is a dummy variable with values 0 and 1, where 1 means chairman and CEO is a single person and 0 for otherwise.

Board remuneration

Remuneration of board of directors can also play a role in reducing the agency costs of the firm as financially satisfied directors will work in the best interest of the firm. Sheikh, Shah, and Akbar (2017) use board compensation to find its impact on agency cost. This variable is measured by taking the logarithm of the annual benefits paid to members of the board.

H3: *Agency cost may be reduced by paying more financial benefits to the board of directors.*

Presence of remuneration committee

There are many committees working under the board of directors and this is one of the committees working under the control of the board of directors which decides remuneration. This is also a dummy variable with value 1 if a separate board remuneration committee exists, otherwise 0.

Fauzi and Locke (2012) utilize a remuneration committee to investigate the impact on agency cost.

Presence of audit committee

A separate audit committee in the firm also works under the board of directs and its purpose is to ensure that all the procedures and guidelines are to be followed for the best interests of the shareholders which will reduce the agency cost. Cai, Hiller, Tian and Wu (2015) use the audit committee to investigate the impact on agency cost.

H4: *Agency cost may be reduced by setting up an audit committee.*

This dummy variable will represent 1 if a separate audit committee exists, otherwise the dummy variable will represent 0.

Agency mitigating external factors

Agency cost is also affected by a number of external variables which have the ability to control the agency costs. External governance attributes like dividend policies, debt and ownership related attributes, firm risk and size of the firm are the major external agency mitigating attributes.

Dividend Policies

Firm level agency cost is expected to be decreased by the higher level of dividend payout because paying more dividends means a lower liquidity level for the firm. Liquidity is important because a higher liquidity level increases the default risk for the firm. Adjaoud and Hermassi (2017) employ dividend payout ratio to investigate its impact on agency cost. If the dividend payout ratio is low, then the firm's liquidity will be higher and there are more chances that the firm will experience a default risk.

H5: *A higher level of dividend payout is expected to decrease a firm's agency costs.*

Dividend yield is measured by dividing the share price (at the end of the year) by the dividends per share.

Debt Policies

Use of debt is an important factor which can impact the agency cost for the firm. Debt works positively in two ways; firstly, by using debt there are some obligations associated with defaulting on debt and secondly, debt holders monitor the firm's activities due to their interest in the firm. Therefore, firms which have higher debt levels are monitored by debt holders more closely and by monitoring, managers have less opportunity to make decisions which are non-value maximizing for the shareholders and debt holders of the firm. Therefore, increase in the level of debt will also increase in the outside monitoring of the managers' activities thus agency cost will be reduced.

H6: *At a higher level of debt in the firm agency cost will be lower.*

Level of debt financing is measured by dividing the total assets by the total debt of the firm.

Data and Measurement

Measurement of Variables

In prior literature various proxy measures have been employed for the existence and level of agency cost measurement. This study measures the existence and level of agency cost by four different measures that provide a comprehensive idea about the level and presence of agency cost in the PSX listed Pakistani firms: i) asset utilization ratio ii) interaction of free cash flow and growth iii) Discretionary expenditure ratio, and finally iv) Tobin's Q ratio.

Asset Utilization Ratio

Asset utilization ratio is the leading proxy for the measurement of agency cost and it is measured as annual total revenue of a firm divided by annual total assets of the firm. Following Singh and Davidson (2003), McKnight and Weir (2009), Henry (2010) and Rashid (2013) this ratio is employed because it provides the effectiveness of firm investment decisions. If the asset utilization ratio is high,

then it gives the idea that assets are generating significant sales and suggest that there is a low level of agency cost. On the other hand, if the ratio is low then it gives the idea that management is not utilizing the firm assets fully and shows that management policies regarding investment decisions are poor.

Free Cash Flow

Interaction of free cash flow and growth is also used to measure the existence and level of agency cost in a firm. The variable is used to get an idea about the agency cost measured as free cash flow multiplied by the growth variable. A higher level of agency costs will be reflected in the firm if high free cash flows are combined with fewer growth opportunities. This is because by retaining high free cash flow the ability of the capital market to monitor the management's decisions will be reduced and high free cash flow will lead to higher agency costs. Firms with high growth opportunities have less excess free cash flows as free cash flow will be spent on the projects with higher net present value (Opler & Titman, 1993). If a firm has fewer growth opportunities and possesses high free cash flow, then there are more chances of experiencing higher agency costs.

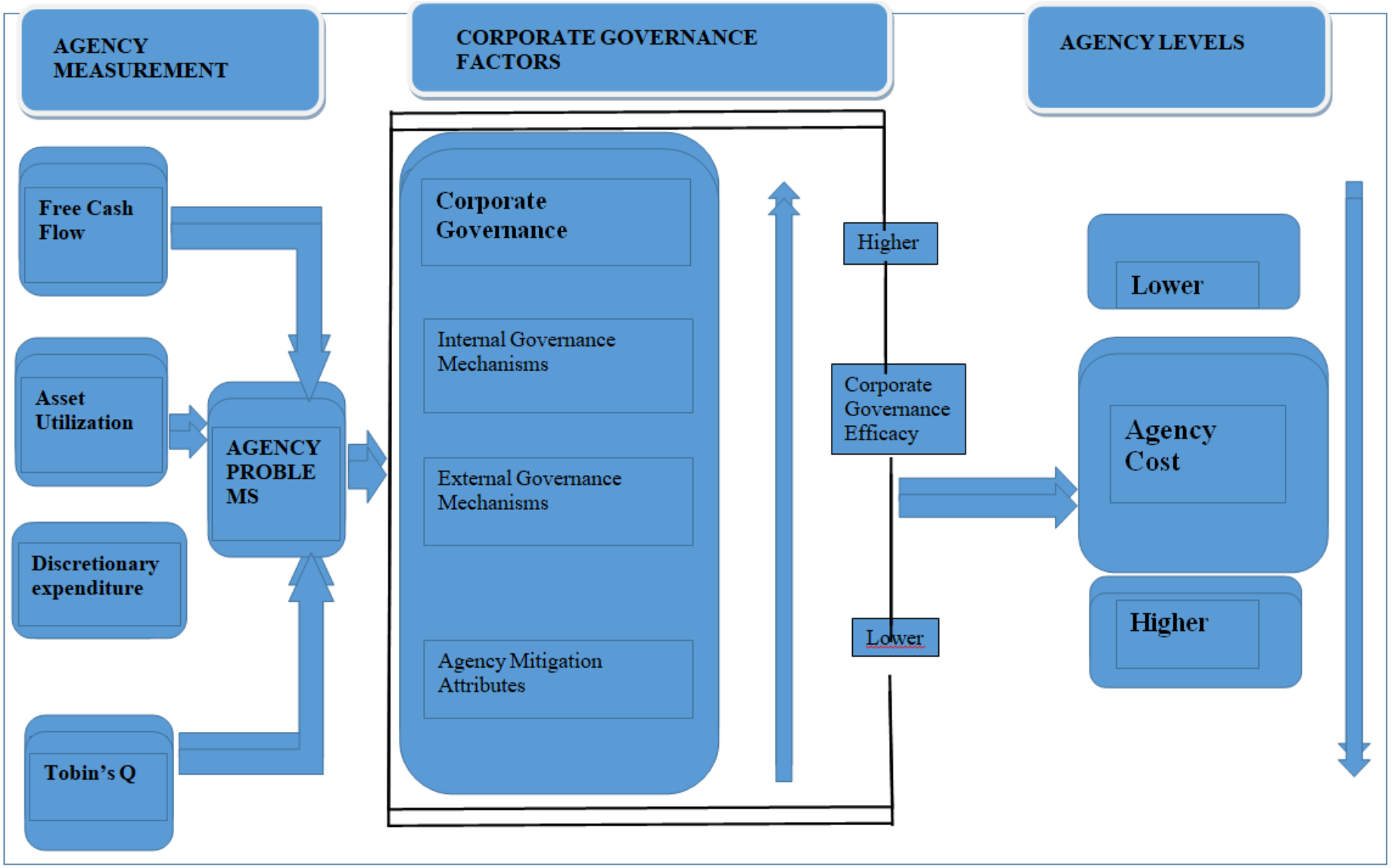
Discretionary Expenditure Ratio

Agency costs can also be measured by the expenditures of the business over which management have the discretionary authority and management can utilize firm resources by spending on these expenditures for its own benefit. This ratio is measured as a sum of general, selling and administrative expenditure divided by total revenue. Singh and Davidson (2003), Henry (2010) and Wellalage and Locke (2012). utilize this ratio for the measurement of agency costs for the listed firms. If this discretionary expenditure ratio is high, then it means there is agency cost in the firm.

Tobin's Q Ratio

Tobin's Q is the most popular ratio to get an idea about the agency costs in the firm. Basically, this ratio measures the performance of the managers because it seems that poorly performing managers make such decisions which give rise to agency costs. Tobin Q ratio is measured as the sum of market capitalization of equity, book value of preferred shares, book value of long term debt divided by book value of total assets. If this ratio is low, then it means manager performance is poor and agency costs exist in the firm because resources are wasted, or non-optimal decisions are made.

Figure 2: Corporate Governance and Agency Problems Model



Data

The panel data analysis used in this research and firm sample was obtained from the selection of 267 firms listed on the Pakistan Stock Exchange and relevant annual data for these companies was collected for the period 2005 to 2008. From the list of available companies, investment and property companies, banking companies (which have different and unique governance) and financial & ownership structure are omitted from the sample. Thus, a panel of 267 firms provided a sample of 1068 yearly observations for the analysis.

Different sources are used in constructing the required variables and these variables are collected from Balance Sheet Analysis of Joint Stock Companies listed on PSX (2003-2008) published by State Bank of Pakistan (SBP) and yearly financial reports of sampled companies. Corporate governance related variable data (Independence of Board, Size of Board, Remuneration of Board and Presence of audit committee) and variables related to ownership & agency mitigating attributes (Director Ownership, Institutional Ownership and External Ownership) were extracted by hand from the annual report documents of sampled firms. Data related to variables like fixed assets, total revenue, growth and size was obtained from Balance Sheet Analysis of Joint Stock Companies. Data related to debt, dividend, business risk, profitability, expenditure on selling, general & administrative expensive, investment and expenditure on research & development was collected from balance sheets presented in the annual reports of selected sample companies taken from SBP, Pakistan Stock Exchange (PSX) and Security and Exchange Commission of Pakistan (SECP). Insider ownership, institutional investment, and ownership by individual investors was collected from patterns of shareholding annual reports during the sampling period.

Research Methodology and Estimation Technique

Estimation Techniques

Many methods are used to measure agency level and to check the impact of adoption of specific corporate governance practices. As data used for analysis is in panel form, it is better to determine which kind of model will fit the analysis - a random effects model or fixed effects model.

The general model may be written as:

$$g_{it} = \propto_i + \beta_{it}\delta + \omega_{it}$$

where g = agency costs,

ω_{it} = error term,

β_{it} represents k number of regressors,

i=1 to n firms,

t=1 to T periods of time.

The constant $\propto_i$ is representing the specific effect for individual firms which vary with time and is unobservable. The constant term is a random outcome in the random effects model, it has a cross section specific error component and this error term is not correlated to the errors of regressor variables.

So

$\propto_i = \propto + \epsilon_i$ where ϵ_i has zero mean.

To differentiate and select the best model form of fixed affects models and random effects models, a very useful test called the Hausman specification is used. The Hausman specification test is performed to analyze the correlation among the x variables and the individual random effect ϵ_i. If correlation is found, then the fixed effects model will be appropriate, otherwise the random effects model will be suitable for the analysis. To investigate association among agency problems and variables that reduce agency costs (governance, control and external variables) regression of fixed effects is used. Unobserved heterogeneity in the sample firms can be controlled through fixed effects models.

Econometric Model

To test the impact of governance and other related variables on the agency cost, this study estimated a linear regression model in the following form:

$$Agency\ Cost = f(external\ agency\ mitigating\ variables, controll\ variables, governance\ variables)$$

Where external agency mitigating variables include; ownership variables, debt financing and size of the firm. Governance variables include best practice corporate governance attributes.

The following is the basic fixed effects model:

$$Agency\ Cost_{it} = \propto + \beta V_{it} + \mu_{it}$$

where: $Agency\ Cost_{it}$ = proxy for the level of agency cost in a firm for a specific year t.

$\propto$ is the intercept of a constant

V_{it} is the vector consisting of control variables, governance variables and agency mitigating variable

μ_{it} is the error term

This model is estimated for each proxy of agency cost measure separately.

Expanding the vector in Eq. 1 gives the following model:

$$Agency\ Cost_{it} = \propto + \sum_{k=1}^{n} \beta_k (CONT_{ki,t}) + + \sum_{l=1}^{n} \beta_l (GOV_{li,t}) + \sum_{m=1}^{n} \beta_m (AGN_{m,it}) + \mu_{it} \quad (1)$$

where: $CONT_{ki,t}$ represents control variables for firms in year t,

$GOV_{li,t}$ represents governance variables for firms in year t,

$AGN_{m,it}$ represents variables related to agency mitigation attributes in year t.

Expanding the variables included in the control, governance and agency mitigating attributes results in the following model:

$$Agency\ Cost_{it} = \propto + \beta_1 DBT_{it} + \beta_2 DIVD_{it} + \beta_3 CCD_{it} + \beta_4 BRDS_{it} + + \beta_5 BRDR_{it} + \beta_6 BRDI_{it} + \beta_7 REMUC_{it} + \beta_8 AUDITC_{it} + + \beta_9 NOMC_{it} + \beta_{10} DIROWN_{it} + \beta_{11} EXTOWN_{it} + + \beta_{12} INSTOWN_{it} + \beta_{13} FSIZE_{it} + \beta_{14} FRISK_{it} + \mu_{it} \quad (2)$$

Agency cost is the dependent variable and is used as a proxy for the measurement of level of agency cost in a firm. This model will be estimated for each measure of agency cost; i) asset utilization ratio (ASSTUT) ii) interaction of free cash flow and growth (FCF) iii) Discretionary expenditure ratio, and finally (DISEXR) iv) Tobin's Q ratio (TQR).

where DBT: represents long term debt & used for proxy of leverage of firm,

DIVD: is the dividend yield for year t,

CCD: is the CEO-Chair duality,

BRDS: represents the board size,

BRDR: is used for the board remuneration,

BRDI: is the board independence,

REMUC: is remuneration committee,

AUDITC: is for the audit committee,

NOMC: represents the nomination committee,

DIROWN: is for director's ownership in the firm,

EXTOWN: represents the external or individual ownership in the firm,

INSTOWN: is the institutional ownership,

FSIZE: is for size of the firm,

FRISK: firm risk.

Individual models for four different agency cost proxy measures are defined as follows:

$$ASSTUT_{it} = \propto + \beta_1 DBT_{it} + \beta_1 DIVD_{it} + \beta_1 CCD_{it} + \beta_1 BRDS_{it} + + \beta_1 BRDR_{it} + \beta_1 BRDI_{it} + \beta_1 REMUC_{it} + + \beta_1 AUDITC_{it} + \beta_1 NOMC_{it} + \beta_1 DIROWN_{it} + + \beta_1 EXTOWN_{it} + \beta_1 INSTOWN_{it} + \beta_1 FSIZE_{it} + + \beta_1 FRISK_{it} + \mu_{it} \quad (3)$$

$$FCF_{it} = \propto + \beta_1 DBT_{it} + \beta_1 DIVD_{it} + \beta_1 CCD_{it} + \beta_1 BRDS_{it} + + \beta_1 BRDR_{it} + \beta_1 BRDI_{it} + \beta_1 REMUC_{it} + \beta_1 AUDITC_{it} + + \beta_1 NOMC_{it} + \beta_1 DIROWN_{it} + \beta_1 EXTOWN_{it} + + \beta_1 INSTOWN_{it} + \beta_1 FSIZE_{it} + \beta_1 FRISK_{it} + \mu_{it} \quad (4)$$

$$DISEXR_{it} = \propto + \beta_1 DBT_{it} + \beta_1 DIVD_{it} + \beta_1 CCD_{it} + \beta_1 BRDS_{it} + + \beta_1 BRDR_{it} + \beta_1 BRDI_{it} + \beta_1 REMUC_{it} + \beta_1 AUDITC_{it} + + \beta_1 NOMC_{it} + \beta_1 DIROWN_{it} + \beta_1 EXTOWN_{it} + + \beta_1 INSTOWN_{it} + \beta_1 FSIZE_{it} + \beta_1 FRISK_{it} + \mu_{it} \quad (5)$$

$$TQR_{it} = \propto + \beta_1 DBT_{it} + \beta_1 DIVD_{it} + \beta_1 CCD_{it} + \beta_1 BRDS_{it} + + \beta_1 BRDR_{it} + \beta_1 BRDI_{it} + \beta_1 REMUC_{it} + \beta_1 AUDITC_{it} + + \beta_1 NOMC_{it} + \beta_1 DIROWN_{it} + \beta_1 EXTOWN_{it} + + \beta_1 INSTOWN_{it} + \beta_1 FSIZE_{it} + \beta_1 FRISK_{it} + \mu_{it} \quad (6)$$

For the existence of the non-linear relationship and its effects on the agency costs the above models will be calculated by including the director ownership (DIROWN), institutional ownership (INSTOWN) and external ownership (EXTOWN) variables with the square terms. So, by this including model 3 now becomes as follows:

$$Agency\ Cost_{it} = \propto + \beta_1 DBT_{it} + \beta_2 DIVD_{it} + \beta_3 CCD_{it} + + \beta_4 BRDS_{it} + \beta_5 BRDR_{it} + \beta_6 BRDI_{it} + + \beta_7 REMUC_{it} + \beta_8 AUDITC_{it} + \beta_9 NOMC_{it} + + \beta_{10} DIROWN_{it} + \beta_{11} DIROWN^2_{it} + + \beta_{12} EXTOWN_{it} + \beta_{13} EXTOWN^2_{it} + + \beta_{14} INSTOWN_{it} + \beta_{15} INSTOWN^2_{it} + + \beta_{16} FSIZE_{it} + \beta_{17} FRISK_{it} + \mu_{it} \quad (7)$$

The Hausman test is performed for all the models from 4 to 7 to check whether fixed effects models or random effects models are appropriate. Results of the Hausman specification test gives the value which has p values less then p=0.10 for the model 4, 6 and model 7. So, the hypothesis about no correlation between variables and their random effects is rejected and it is accepted that fixed effects models are appropriate. Therefore, fixed effects regression analysis is conducted to

investigate the relationship between the proxy variables used for measuring the extent of agency costs and agency mitigating variables.

Governance Index (GI) and Agency

After measuring the model incorporating the effects of individual corporate governance variables on the agency cost, an index for corporate governance variables is also created to measure the combined outcome of corporate governance variables on the agency problems. The Governance Index (GI) is created by adding the values of all corporate governance dummy variables. Using a governance index in the model will determine whether combining the governance attributes of firms has any significant effect on the level of agency costs.

$$Agency\ Cost_{it} = \propto + \sum_{k=1}^{n} \beta_k(GI_{ki,t}) + \sum_{l=1}^{n} \beta_l(CONT_{li,t}) + \\ + \sum_{m=1}^{n} \beta_m(AGN_{m,it}) + \mu_{it} \quad (8)$$

where $GI_{ki,t}$ represents corporate governance index for firms in year t

Defining the variables included in the control, governance and agency mitigating attributes results in the following model:

$$Agency\ Cost_{it} = \propto + \beta_1 GI_{it} + \beta_2 DIVD_{it} + \beta_3 DBT_{it} + \\ + \beta_4 DIROWN_{it} + \beta_5 DIROWN^2_{it} + \\ + \beta_7 EXTOWN^{\epsilon}_{it} + \beta_8 INSTOWN_{it} + \\ + \beta_9 INSTOWN^{\epsilon}_{it} + \beta_{10} FSIZE_{it} + \beta_{11} FRISK_{it} + \mu_{it} \quad (9)$$

Agency cost is the dependent variable and is utilized as a proxy for measurement of the level of agency cost in a firm. This model is also estimated for each measure of agency cost; i) asset utilization ratio (ASSTUT) ii) interaction of free cash flow and growth (FCF) iii) Discretionary expenditure ratio, and finally (DISEXR) iv) Tobin's Q ratio (TQR).

Descriptive Statistics and Analysis

Descriptive statistics for the agency cost proxy variables and agency cost mitigating variables shows that from the agency cost proxy variables perspective it is found that across the sample firm observations, the average discretionary expenditure ratio for the selected sample firms is 0.4456 and median firms are exhibiting a discretionary expenditure ratio of 0.374. If we compare these results with the mean and median values of selling, general and administrative expense to sales ratio of 0.279 and 0.195 by Singh and Davidson (2003) and the mean and median value of discretionary expenditure ratio of 0.369 and 0.321 by Henry (2010), the discretionary expenditure ratio is found substantially higher so it is evident that there are high agency cost problems in Pakistan. The mean and median values for the free cash flows are 0.128 and 0.097 respectively.

The mean value of asset utilization ratio was 1.18 and median firms are operating at an efficiency level less than 0.98. These results (mean and median) for asset utilization ratio can be compared with other studies; for US firms Singh and Davidson (2003) report mean and median asset utilization values 1.43 and 1.24 respectively which is the evidence of higher agency problems in Pakistan. The mean and median values for the Tobin's Q ratio was 1.262 and 0.964 respectively, while mean and median values of Tobin's Q ratio for the UK listed companies reported by Doukas, McKnight and Pantzalis (2005) are 2.192 and 1.400.

Pair wise correlation coefficients suggest that many agency-mitigating attributes are useful for reducing the agency costs and institutional ownership is seems to be more important among these. Institutional ownership contributes in many ways to the mitigation of agency problems as it forces the board to be more independent. Other shareholder categories are also treated as useful monitoring devices for controlling the agency problems.

Results and Discussion

In this section results and analysis for the regression models examining the relationship between agency cost proxies (asset utilization ratio, discretionary expenditure ratio, Tobin's Q ratio and Free Cash Flow ratio) and agency mitigating attributes (corporate governance, ownership and control attributes) are presented and discussed in detail.

Agency Cost Proxy: Asset Utilization Ratio (ASSTUT)

Results for equation 3 are listed in Table 1. Analyzing individual governance attributes, it is found that assets utilization ratio is affected by few of these attributes including the remuneration of board, remuneration committee and audit committee. It is found that firms paying higher remuneration to the directors are observed

to enhance the asset efficiency significantly but firms which have remuneration committee are negatively affecting the asset utilization ratio. Surprisingly it is found that use of an audit committee is adversely affecting the asset utilization ratio significantly. Efficiency of firms is found to be positively associated with independence of the board of directors and size of the board. A negative relationship is found between CEO-chairman dummy and asset utilization ratio, therefore it is clear that a single person as CEO and chairperson is not good for the performance of the firms as shown by the asset utilization ratio.

Ownership variables also have significant important impact on the asset utilization ratio. Institutional ownership and external ownership both are important to have significant positive association with asset utilization ratio of the firm. This supports the idea that with higher institutional ownership the monitoring role of the institution increases which enhances the performance of the firm; at least as shown by the asset utilization ratio. Director ownership is observed to be positively but not significantly related with the asset utilization ratio. In a separate model which includes the square of the ownership variable to check the non-linear relationship among ownership attributes and assets utilization ratio, similar results are found, and no evidence that there will be different impact on the high and low level of asset utilization by the director ownership and institutional ownership. However, some non-linear significant relationship is found between the asset utilization ratio and the external ownership, signifying that with a higher level of external ownership the efficiency of asset utilization increases. Analyzing the selected control variables, it is found that using more debt (leverage) reduces the asset utilization ratio significantly. Consistent to prior researches it is found that sample firms' efficiency

Table 1: Fixed Effect Agency Cost (ASSTUT) Model: Governance, Control and Agency Mitigating Variables

	ASSTUT-MODEL 1			ASSTUT-MODEL 2		
Variables	**Coefficient**	**t-Statistic**	**Prob.**	**Coefficient**	**t-Statistic**	**Prob.**
C	0,9672	1,4175	0,1566	0,1047	0,1256	0,9001
BRDI	0,7474	1,4667	0,1427	0,8085	1,5759	0,1153
CCD	-0,0138	-0,2505	0,8023	-0,0014	-0,0261	0,9792
BRDS	0,2046	0,664	0,5068	0,238	0,7732	0,4396
BRDR	0.065*	4,366	0	0.063*	4,2478	0
AUDITC	-0.226*	-4,0706	0,0001	-0.228*	-4,1138	0
REMUC	-0.23**	-2,6071	0,0093	-0.26**	-2,839	0,0046
DIROWN	0,5135	1,3308	0,1835	1,7478	1,4817	0,1387
DIROWN^2	-	-	-	-0,5038	-0,5644	0,5726
INSTOWN	0.69**	2,4153	0,0159	1.22**	1,8958	0,0583
INSTOWN^2	-	-	-	0,2185	0,567	0,5708
EXTOWN	0.56**	1,8824	0,0601	2.598*	3,7025	0,0002
EXTOWN^2	-	-	-	1.460*	3,5792	0,0004
DBT	-0.006*	-3,8176	0,0001	-0.006*	-3,6922	0,0002
DIVD	2.817*	7,5025	0	2.797*	7,4685	0
FRISK	3.360*	6,0212	0	3.258*	5,8613	0
FSIZE	-0.466*	-7,1292	0	-0.473*	-7,2278	0
R-squared	0,2129			0,2238		
Adjusted R-squared	0,2032			0,2119		
F-statistic	21,9257			18,9345		
Prob(F-statistic)	0			0		

** and ** denote significance at the 1% and 5% levels respectively.*

of assets utilization decreases with the increase in size of the firm. Also, a positive significant relationship is found between dividend payout ratio and asset utilization ratio which suggests that assets are generating high revenue to pay more dividends to the shareholders. Dividend policy is important to reduce the agency problems and improve the firm performance by changing behavior of the managers to improve the earning performance of the firm.

Agency Cost Proxy: Free Cash Flow (FCF)

Table 2 presents the results of the equation 4 using Tobit random effects regression which takes the interaction of free cash flow and growth as a dependent variable and corporate governance attributes, ownership and control variables are taken as independent variables for analysis of the model. Analyzing the free cash flow model, it is evident that most of the variables have negative association with free cash flow proxy of agency cost. Dividend payout ratio is observed to be negatively associated to free cash flow signifying that paying dividends to shareholders is very effective to control the agency cost by minimizing the accumulation of free cash flow. It is also found that there is negative association between size of firm and free cash flow; as the size of the firm increases the accumulation of free cash flow decreases, which gives the idea that larger firms have more growth opportunities to utilize free cash flow. Although not significant, a positive association is found between the leverage (debt) and free cash flow.

From the individual corporate governance attributes audit committee, remuneration committee and board size are found to have effective control over the free cash flow as these attributes are negatively (not significantly) related with the free cash flows. Analysis of ownership variables shows that all the ownership variables, director ownership, institutional ownership and external ownership are negatively but not significantly related with the free cash flow. But when we incorporate non-linear specification in the model 2 we found all these variables

Table 2: Fixed Effect Agency Cost (FCF) Model: Governance, Control and Agency Mitigating Variables

Tobit random effects regression						
	FCF-MODEL 1			FCF-MODEL 2		
Variables	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
C	0.1243	1.0815	0.2797	0.2795	1.9870	0.0472
BRDI	0.0401	0.4666	0.6409	0.0525	0.6065	0.5443
CCD	0.0140	1.5064	0.1323	0.01**	1.7222	0.0853
BRDS	-0.0354	-0.6830	0.4948	-0.0374	-0.7204	0.4715
BRDR	0.0037	1.4760	0.1402	0.0036	1.4296	0.1531
AUDITC	-0.0019	-0.2039	0.8385	-0.0034	-0.3651	0.7151
REMUC	-0.0181	-1.1754	0.2401	-0.0165	-1.0680	0.2858
DIROWN	-0.0897	-1.3793	0.1681	-0.53**	-2.6651	0.0078
DIROWN^2	-	-	-	0.36**	2.4389	0.0149
INSTOWN	-0.0516	-1.0619	0.2885	-0.348*	-3.1986	0.0014
INSTOWN^2	-	-	-	0.154*	2.3810	0.0174
EXTOWN	-0.0310	-0.6155	0.5384	-0.0744	-0.6284	0.5299
EXTOWN^2	-	-	-	-0.121*	-1.7615	0.0784
DBT	9.9076	0.0004	0.9997	-3.3875	-0.1207	0.9040
DIVD	-0.14**	-2.3543	0.0187	-0.16**	-2.5461	0.0110
FRISK	0.309*	3.2914	0.0010	0.299*	3.1975	0.0014
FSIZE	-0.019*	-1.7904	0.0737	-0.0181	-1.6382	0.1017
F-statistic	1.9320			2.2974		
Prob(F-statistic)	0.0234			0.0026		

* and ** denote significance at the 1% and 5% levels respectively.

negatively and significantly related with free cash flow which concludes that retention of free cash flows is lower with the presence of institutional and director ownership in the firm. This finding once again shows the importance of director and institutional ownership in mitigating the problem of agency cost.

With the non-linear specification of the model dummy variable representing the CEO-chairperson duality also becomes significant and it is positively related with the free cash flow proxy of agency cost.

This significant and positive relationship concludes that a single person as CEO and chairperson of the board becomes powerful and misses out on utilizing the key resources of the firm like high retention of free cash flow, which is the proof of higher level of agency cost.

Agency Cost Proxy: Discretionary expenditure ratio (DISEXR)

Table 3 provide the regression model 5 results and the discretionary expenditure ratio is a dependent variable which is used as representation of agency cost measurement, and corporate governance attributes, ownership and control variables are taken as independent variables for the analysis of the model. The results show a statistically significant negative association between board remuneration and discretionary expenditure ratio, which is consistent with high director remuneration reducing the discretionary expenditure ratio and reduction of level of agency costs.

On the other hand, a positive significant relationship is found between the discretionary expenditure ratio and duality of CEO-chairman, which suggests that duality of CEO-chair leads to an increased discretionary expenditure

Table 3: Fixed Effect Agency Cost (DISEXR) Model: Governance, Control and Agency Mitigating Variables

	DISEXR-MODEL 1			DISEXR-MODEL 2		
Variables	**Coefficient**	**t-Statistic**	**Prob.**	**Coefficient**	**t-Statistic**	**Prob.**
C	-0.6433	-1.0033	0.3160	0.5172	0.6641	0.5068
BRDI	0.88**	1.8913	0.0589	1.043*	2.2055	0.0276
CCD	0.293*	5.6060	0.0000	0.295*	5.6569	0.0000
BRDS	0.4453	1.5420	0.1234	0.4290	1.4910	0.1363
BRDR	-0.02**	-1.8463	0.0651	-0.02**	-1.6920	0.0910
AUDITC	-0.13**	-2.6303	0.0087	-0.153*	-2.9217	0.0036
REMUC	-0.20**	-2.3913	0.0170	-0.193*	-2.2818	0.0227
DIROWN	-0.71**	-1.9952	0.0463	-3.643*	-3.2881	0.0010
DIROWN^2	-	-	-	2.152*	2.5601	0.0106
INSTOWN	-0.4247	-1.5777	0.1149	-2.752*	-4.4990	0.0000
INSTOWN^2	-	-	-	1.291*	3.4743	0.0005
EXTOWN	-0.583*	-2.0742	0.0383	-1.538*	-2.3347	0.0198
EXTOWN^2	-	-	-	-0.1805	-0.4608	0.6450
DBT	-0.0984	-1.6091	0.1079	-0.0623	-1.0152	0.3102
DIVD	0.2072	0.5920	0.5540	0.1312	0.3770	0.7062
FRISK	-0.3671	-0.6586	0.5103	-0.3814	-0.6884	0.4914
FSIZE	0.277*	4.1326	0.0000	0.303*	4.5340	0.0000
R-squared	0.1000			0.1166		
Adjusted R-squared	0.0884			0.1027		
F-statistic	8.6722			8.3503		
Prob(F-statistic)	0.0000			0.0000		

* and ** denote significance at the 1% and 5% levels respectively.

ratio and causes agency cost problems for firms. Another important finding is that a negative significant relationship exists between discretionary expenditure and existence of an audit committee, suggesting that an effective audit committee can be an important tool to control the discretionary expenditure ratio.

From control variables leverage and firm risk have a negative relationship with the discretionary expenditure ratio; and a positive relationship is found between dividend, firm size and discretionary expenditure ratio. But only the firm size variable is found to be significant, suggesting that firms larger in size have higher discretionary expenditure ratios. From the ownership variables higher director ownership is found to significantly lower the discretionary expenditure ratio. Also, a significant negative association is found among external ownership and discretionary expenditure ratio. These results show that as external ownership increases ratio of discretionary expenditure decreases. In non-linear specification of the model institutional ownership is observed to be negatively and significantly linked with discretionary expenditure ratio suggesting that with higher institutional shareholding discretionary expenditure ratio can be controlled. This once again shows institutional ownership as important agency mitigating mechanism.

Agency Cost Proxy: Managerial Performance - TOBIN'S Q ratio (TQR)

Table 4 presents results for equation 6 which takes the managerial performance (Tobin's Q) dependent variable also as an indicator for agency cost, and corporate governance attributes of ownership and control variables are taken as independent variables for the analysis of the model. Analyzing the Tobin's Q model, it is observed that association among Tobin's Q ratio

Table 4: Fixed Effect Agency Cost (TQR) Model: Governance, Control and Agency Mitigating Variables

	TQR-MODEL 1			TQR-MODEL 2		
Variables	**Coefficient**	**t-Statistic**	**Prob.**	**Coefficient**	**t-Statistic**	**Prob.**
C	2.415016*	3.7043	0.0002	2.579343*	3.2215	0.0013
BRDI	1.09812*	2.2554	0.0243	1.23957*	2.5158	0.0120
CCD	0.0284	0.5399	0.5894	0.0279	0.5285	0.5973
BRDS	0.0509	0.1729	0.8627	0.0114	0.0386	0.9693
BRDR	-0.0055	-0.3858	0.6997	-0.0066	-0.4624	0.6439
AUDITC	-0.14171*	-2.6623	0.0079	-0.1365**	-2.5635	0.0105
REMUC	0.0019	0.0212	0.9831	0.0127	0.1443	0.8853
DIROWN	0.1275	0.3460	0.7294	-0.0182	-0.0161	0.9872
DIROWN^2	-	-	-	0.1211	0.1412	0.8877
INSTOWN	0.4007	1.4551	0.1459	0.9753	1.5742	0.1157
INSTOWN^2	-	-	-	-0.7276**	-1.9657	0.0496
EXTOWN	-0.0370	-0.1298	0.8968	-0.5342	-0.7925	0.4283
EXTOWN^2	-	-	-	0.4378	1.1170	0.2642
DBT	-0.0006	-0.3631	0.7166	-0.0003	-0.2035	0.8388
DIVD	2.981024*	8.3071	0.0000	3.036269*	8.4392	0.0000
FRISK	3.466155*	6.4989	0.0000	3.502175*	6.5601	0.0000
FSIZE	-0.63986*	-10.2337	0.0000	-0.65138*	-10.3628	0.0000
R-squared	0.2172			0.2202		
Adjusted R-squared	0.2075			0.2083		
F-statistic	22.4959			18.5442		
Prob(F-statistic)	0.0000			0.0000		

* and ** denote significance at the 1% and 5% levels respectively.

(managerial performance) and dividend payout ratio is positive and significant, which shows that high dividend payout to shareholders shows the good performance of managers and therefore managers play an important role in reducing the agency costs for the firm. The results show the significant negative relationship between size of the firm and performance of managers (Tobin's Q), suggesting that an investor faces more agency problems as the size of a firm increases. Surprisingly a positive and important association is found between the risk firm is facing and the Tobin's Q ratio, this shows that performance of managers improves as the level of risk increases for the firm.

From the corporate governance attributes audit committee and board independence are found significant and have positive association with the Tobin's Q ratio. Ownership attributes including director ownership and institutional ownership are positively associated with Tobin's Q ratio suggesting that higher director ownership has an incentive for directors and the performance of directors is enhanced by higher director ownership. External ownership is negatively related with Tobin's Q, although none of these ownership variables is found statically significant. However, in model 2 non-linear ownership effects indicate the negative and significant

Table 5: Fixed effect regression of Agency Cost and Governance Index

Variables	FCF		ASSTUT		DISEXR		TQR	
C	0.2125	**	0.6860		1.2136	**	2.4645	*
	-2.4232		-1.2934		-2.4380		-4.9223	
GI	-0.0205	*	-0.0334		-0.0613	**	0.0926	*
	(-3.39467	)	(-1.1019)		(-2.1562)		-3.2286	
DIROWN	-0.5306	**	1.0884		-3.4365	*	0.1367	
	(-2.70841)		-0.9198		(-3.0933)		-0.1224	
DIROWN^2	0.3696	**	-0.0673		2.0227	*	0.0797	
	-2.4819		(-0.0746)		-2.3847		-0.0937	
INSTOWN	-0.3479	*	1.0673		-2.5203	*	0.9806	
	(-3.2357)		-1.6418		(-4.0922)		-1.5978	
INSTOWN^2	0.1535	**	0.0646		-1.1205	*	-0.6291	***
	-2.3927		-0.1663		(-3.0163)		(-1.7162)	
EXTOWN	-0.0807		2.2814	*	-1.6840	**	-0.3854	
	(-0.69066)		-3.2307		(-2.5467)		(-0.5781)	
EXTOWN^2	-0.1138	***	-1.4450	*	0.0297		0.3841	
	(-1.6585)		(-3.4834)		-0.0748		-0.9807	
DBT	-7.1405		-0.0062*		-0.0153		-0.0004	
	(-0.2557)		(-3.6695)		(-0.247)		(-0.2406)	
DIVD	-0.1470	**	3.1581	*	0.0690		3.1277	*
	(-2.353)		-8.3597		-0.1968		-8.7695	
FRISK	0.3029	*	3.6008	*	-0.4925		3.5394	*
	-3.2452		-6.3804		(-0.8778)		-6.6432	
FSIZE	-0.0180		-0.4522	*	0.3308	*	-0.6414	*
	(-1.6369)		(-6.8108)		-4.8819		(-10.233)	
R-squared			0.1872		0.0797		0.2109	
Adjusted R-squared			0.1788		0.0698		0.2027	
F-statistic	2.7528		22.1143		8.0072		25.6624	
Prob(F-statistic)	0.0016		0.0000		0.0000		0.0000	

* and ** denote significance at the 1% and 5% levels respectively.

association found among the institutional ownership and Tobin's Q ratio which suggests that institutional benefits differ for low and high ownership levels.

Analyzing individual corporate governance attributes, existence of CEO-chair duality enhances discretionary expenditure ratio and enhances the free cash flow and is found to have no significant impact on asset utilization ratio and Tobin's Q ratio. All other individual corporate governance attributes are found to have no relationship with any of these four agency cost proxies. Level of discretionary expenditure reduces with the increase in the board independence and performance of managers improves as the independence of the board increases. For control variables, leverage or use of debt only reduces the asset utilization ratio and has no significant impact on other agency proxy variables. High dividend ratio raises the asset utilization ratio, decreases the free cash flow and improves the performance of managers (Tobin's Q ratio).

Increase in the level of firm risk raises free cash flow and Tobin's Q ratio, and has no significant impact on discretionary expenditure ratio. Larger companies experience lesser level of asset utilization ratio, decrease in free cash flow, greater level of discretionary expenditure ratio and lower level of Tobin's Q ratio.

In term of ownership characteristics, director ownership is found effective in regulating free cash flow and decreasing the discretionary expenditure ratio, and has no significant impact on asset utilization ratio and Tobin's Q ratio. Institutional ownership and external ownership are effective to improve the asset utilization ratio, to decrease the free cash flow and to control discretionary expenditure ratio.

Agency Cost and Governance Index (GI):

In the literature many studies find that representing the structure of overall corporate governance significantly affects the performance of firm. To measure the combined effect of corporate governance attributes on the agency cost proxies, a Governance Index (GI) is formed. A number of studies have constructed the corporate governance indices, many studies focus on the board of directors while others discuss the shareholders rights and transparency. Lots of studies use the corporate governance index with major focus on the director's board and discussion of the structure and responsibilities of the board of directors (Ananchotikul, 2008; Cornelius, 2005). This study constructed a simple governance index with focus on the structure of the board by utilizing the six binary variables for the construction of governance index.

Table 5 provides the results for the revised model represented in equation 9 which includes governance index as a key variable and four measures of agency cost. The coefficients of the Governance index are found significant and their sign for the agency cost measure of interaction of free cash flow and growth (FCF), discretionary expenditure ratio (DISEXR) and Tobin's Q ratio (TQR) are found as expected; except the asset utilization ratio (ASSTUT). This supports the view that overall governance structure leads to reducing the agency cost for the shareholders as firms which follow the instructions of the code of corporate governance and are in more alignment with the recommendations of the best practices are experiencing lower agency cost. From the ownership attributes director ownership is found to be negatively and significantly affecting the interaction of free cash flow growth and discretionary expenditure ratio. Institutional ownership is negatively and significantly affecting the interaction of free cash flow growth and discretionary expenditure ratio whereas square of institutional ownership is also negatively and significantly affecting the Tobin's Q ratio. External ownership is positively and significantly related with asset utilization ratio negativity and significantly related with the discretionary expenditure ratio. From the control variables debt is only affecting the asset utilization proxy of agency cost significantly. Firm risk is positively and significantly affecting the interaction of free cash flow growth, asset utilization ratio and Tobin's Q ratio. Negative and significant relationship is found between firm size and asset utilization & and Tobin's Q ratio; firm size is also positively and significantly affecting the discretionary expansionary ratio.

Summary of Results

This research analyses the association among agency cost, governance of corporation, ownership structure and control variables characteristics; this issue has not been previously discussed empirically, and special focus has been placed on investigating agency cost related to registered firms on the Pakistan Stock Exchange (PSX). This is examination of the overall code of corporate governance from the perspective of agency cost in the

Pakistani market as agency problems are increasingly prevalent in Pakistani context. This study also focuses on identifying the mechanisms which are useful in reduction of agency cost.

This study utilizes four different measures of agency cost; asset utilization ratio, free cash flow ratio, discretionary expenditure ratio and Tobin's Q ratio, and reports that results are sensitive to different definitions of agency cost like Tshipa (2017), McKnight and Weir (2009) and Singh and Davidson (2003) this study also shows consistent results across different measures.

Using four different measures of agency cost and analyzing individual corporate governance attributes, this study finds that existence of CEO-chair duality reduces discretionary expenditure ratio and enhances the free cash flow; and is found to have no impact on asset utilization ratio and Tobin's Q ratio, whereas high board remuneration enhances the firm's asset utilization ratio and reduces the discretionary expenditure ratio and is found to have no impact on free cash flow and Tobin's Q ratio. Presence of an audit committee and remuneration committee reduces the discretionary expenditure ratio and is found to have no impact on asset utilization ratio, free cash flow and Tobin's Q ratio. All other individual corporate governance attributes are found to have no relationship with any of these four agency cost proxies. This study finds that changes in the structure of board have little or no effect on agency cost in Pakistan and support the view that firms have moved to a new structure which is more consistent to the value maximization as proposed by McKnight and Weir (2009) and Coles, Daniel and Naveen (2008).

For control variables, leverage or use of debt only reduces the asset utilization ration and have no significant impact on other agency proxy variables. High dividend ratio enhances asset utilization ratio, decreases the free cash flow and increases performance of managers (Tobin's Q ratio). Increase in level of firm risk raises free cash flow and Tobin's Q ratio, and have no significant impact on discretionary expenditure ratio. Larger companies face a lower level of asset utilization ratio, decrease in free cash flow, higher level of discretionary expenditure ratio and lower level of Tobin's Q ratio. Analysis of control variables indicates varying results for size, risk and dividend policies of the firm.

In term of ownership attributes, director ownership is found effective in regulating free cash flow and decreasing the discretionary expenditure ratio, and has no significant impact on asset utilization ratio and Tobin's Q ratio. Institutional ownership and external ownership are important to enhance the asset utilization ratio, to decrease the free cash flow and to control discretionary expenditure ratio and reduce the agency cost, consistent with Coles et. al. (2008). Consistent with the Henry (2004) results indicates that greater institutional ownership leads to significant reduction of the agency cost.

The Governance Index supports the view that overall governance structure leads to reducing the agency cost for the shareholders as firms which follow the instructions of the code of corporate governance and are more aligned with the recommendations of the best practices are experiencing lower agency cost. From the ownership attributes director ownership is found to be negatively and significantly affecting the interaction of free cash flow growth and discretionary expenditure ratio. Institutional ownership is negatively and significantly affecting the interaction of free cash flow growth and discretionary expenditure ratio whereas the square of institutional ownership is also negatively and significantly affecting the Tobin's Q ratio. External ownership is positively and significantly related with asset utilization ratio and negativity and significantly related with the discretionary expenditure ratio. From the control variables debt is only affecting the asset utilization proxy of agency cost significantly. Firm risk is positively and significantly affecting the interaction of free cash flow growth, asset utilization ratio and Tobin's Q ratio. Negative and significant relationship is found between firm size and asset utilization and Tobin's Q ratio; firm size is also positively and significantly affecting the discretionary expansionary ratio. From the analysis of the Governance Index measure it is concluded that higher internal governance significantly lowers the agency cost levels.

Policy Implications

This study identifies some important findings which have key implications for corporate regulators, managers, firms and shareholders.

1) The results have important consequences from the cost of capital and investor risk points of view and in attracting investment capital.

2) These findings also suggest that adoption of the SECP code of corporate governance by listed firms enhances the ability to reduce the level of agency cost and to improve the performance of firms for value maximization of shareholder wealth.

3) Results also indicate that to control the agency cost and improve the firm performance, governance reforms should be applied from an overall perspective instead of individual governance changes.

4) For the further treatment of agency cost for listed companies, policymakers should pay special attention to the factors like use of debt, insider shareholdings, large institutional shareholdings, profitability, fixed assets and growth opportunities for controlling the agency cost.

5) Also, internal governance related policies should be given due importance for reducing agency cost and improving firm performance.

This study also points out a number of areas as the results are generally consistent with the theory, but it is very important to understand the relationship between governance and agency cost from an external environmental point of view. Further work on environmental factors is required for deeper understanding of this topic.

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List of Companies

1) Abbott Laboratories Pakistan Ltd.
2) Agriautos Industries Ltd.
3) Al - Khair Gadoon Ltd.
4) Al- Abid Silk Mills Ltd.
5) Al-Abbas Cement Industries Ltd.
6) Al-Abbas Sugar Mills Ltd.
7) Al-Ghazi Tractors Ltd.
8) Ali Asghar Textile Mills Ltd.
9) Al-Noor Sugar Mills Ltd.
10) Al-qadir textile mills Ltd
11) Altern Energy Ltd.
12) Ansari Sugar Mills Ltd.
13) apollo Textile Mills Ltd
14) Artistic Denim Mills Ltd.
15) Aruj garment accessories Ltd
16) Ashfaq Textile Mills Ltd.
17) Asim Textile Mills Ltd.
18) Atlas engineering Ltd.
19) Atlas Honda Ltd.
20) Attock Cement Pakistan Ltd.
21) Attock Petroleum Ltd.
22) Attock Refinery Ltd.
23) Azam Textile Mills Ltd.
24) Azgard Nine Ltd.
25) Baba Farid Sugar Mills Ltd.
26) Baluchistan Wheels Ltd.
27) Bannu Woollen Mills Ltd
28) Bata Pakistan Ltd
29) Bawany Air Product Ltd
30) Bawany Sugar Mills Ltd
31) Bela Automotives Ltd
32) Berger paint Ltd
33) Bestway Cement Ltd.
34) Biafo Industries Ltd.
35) Bilal Fibres Ltd.
36) Blessed Textiles Mills Ltd
37) BOC Pakistan Ltd.
38) Bolan Castin Ltd
39) Bosicor Pakistan Ltd.
40) Brothers Textile Mills Ltd.
41) Century Paper & Board Mills Ltd.
42) Chakwal Spinning Mills Ltd.
43) Chashma Sugar Mills Ltd.
44) Chenab Ltd.
45) Cherat Cement Company Ltd.
46) Cherat Papersack Ltd.
47) Clariant Pakistan Ltd.
48) Clover Pakistan Ltd.
49) Colgate - Palmolive Pakistan Ltd.
50) Colony Mills Ltd.

51) Crescent Jute Products Ltd.
52) Crescent Sugar Mills & Distillery Ltd.
53) Crescent Textile Mills Ltd.
54) D. G. Khan Cement Company Ltd.
55) Dadabhoy Cement Industries Ltd.
56) Dadex Eternit Ltd.
57) Dandot Cement Company Ltd.
58) Data Textiles Ltd.
59) Dawood Hercules Chemicals Ltd.
60) Dawood Lawrencepur Ltd.
61) Dewan Automotive Engineering Ltd.
62) Dewan Cement Ltd. (Pakland)
63) Dewan Farooque Motors Ltd.
64) Dewan Salman Fibre Ltd.
65) Dewan Sugar Mills Ltd.
66) Dewan Textile Mills Ltd.
67) Din Textile Mills Ltd.
68) Dreamworld Ltd.
69) Dynea Pakistan Ltd.
70) Elahi Cotton Mills Ltd
71) Ellcot Spinning Mills Ltd.
72) Emco Industries Ltd.
73) Engro Chemical Pakistan Ltd.
74) Eye Television Network Ltd.
75) Faisal Spinning Mills Ltd.
76) Faran Sugar Mills Ltd.
77) Fateh Industries Ltd
78) Fateh Sports Wear Ltd
79) Fateh Textile Mills Ltd
80) Fatima Enterprises Ltd.
81) Fauji Cement Company Ltd.
82) Fauji Fertilizer Company Ltd.
83) Fazal Cloth Mills Ltd.
84) Fecto Cement Ltd.
85) Fecto Sugar Mills Ltd.
86) Ferozsons Laboratories Ltd.
87) Gadoon Textile Mills Ltd.
88) Gammon Pakistan Ltd.
89) Gatron (Industries) Ltd.
90) General Tyre & Rubber Company of Pakistan Ltd.
91) Ghandhara Industries Ltd.
92) Ghandhara Nissan Ltd.
93) Ghani Automobile Industries Ltd.
94) Ghani Glass Ltd.
95) Gharibwal Cement Ltd.
96) Ghazi Fabrics International Ltd.
97) Gillette Pakistan Ltd.
98) Glamour Textile Mills Ltd.
99) GlaxoSmithKline Pakistan Ltd.
100) Globe Textile Mills Ltd.
101) Good Luck Industries Ltd
102) Grays of Cambridge
103) Gul Ahmed Textile Mills Ltd.
104) Gulistan Spinning Mills Ltd.
105) Gulistan Textile Mills Ltd.
106) Gulshan Spinning Mills Ltd.
107) Habib ADM Ltd.
108) Habib Sugar Mills Ltd. **
109) Haji Mohammad Ismail Mills Ltd.
110) Hajra Textile Mills Ltd.
111) Hala Interpries Ltd.
112) Hamid Textile Mills Ltd.
113) Haseeb Waqas Sugar Mills Ltd.
114) Highnoon Laboratories Ltd.
115) Hinopak Motors Ltd.
116) Honda Atlas Cars Pakistan Ltd.
117) Huffaz Seamless Pipe Industries
118) Husein Sugar Mills Ltd.
119) Ibrahim Fibres Ltd.
120) ICC Textiles Ltd.
121) ICI Pakistan Ltd.
122) Ideal Spinning Mills Ltd.
123) Indus Dyeing & Manufacturing Company Ltd.
124) Indus Motor Company Ltd.
125) International Industries Ltd.
126) Ishaq Textile Mills Ltd.
127) Island textile Mills Ltd
128) Ismail Industries Ltd.
129) Ittehad Chemicals Ltd.
130) J. A. Textile Mills Ltd.
131) Japan Power Generation Ltd.
132) Javedan Cement Ltd.
133) JDW Sugar Mills Ltd.
134) Karachi Electric Supply Corporation Ltd.
135) Karam Ceramics Ltd.
136) Karim Cotton
137) Khairpur Sugar Mills Ltd.
138) Khalid Siraj Textile Mills Ltd.
139) Khurshid Spinning Mills Ltd.
140) Kohat Cement Ltd.
141) Kohat Textile Mills Ltd.
142) Kohinoor Energy Ltd.
143) Kohinoor Industries Ltd.
144) Kohinoor Mills Ltd. (Kohinoor Weaving)
145) Kohinoor Spinning Mills Ltd.
146) Kohinoor Sugar Mills Ltd.

147)Kohinoor Textile Mills Ltd.
148)Kot Addu Power Company Ltd.
149)KSB Pumps Company Ltd.
150)Lakson Tobacco Company Ltd.
151)Landmark Spinning Mills Ltd.
152)Latif Jute Mills Ltd
153)Liberty Mills Ltd.
154)Lucky Cement Ltd.
155)MacPac Films Ltd.
156)Mahmood Textile Mills Ltd.
157)Maple Leaf Cement Factory Ltd.
158)Maqbool Textile Mills Ltd.
159)Mari Gas Company Ltd.
160)Masood Textile Mills Ltd.
161)Mehr Dastgir Textile Mills Ltd.
162)Mehran Sugar Mills Ltd.
163)Mian Textile Mills Ltd.
164)Millat Tractors Ltd.
165)Mirza Sugar Mills Ltd.
166)Mohammed Farooq Textile Mills Ltd.
167)
168)Moonlite (Pak) Ltd
169)Morafco industries Ltd
170)Mukhtar Textile Mills Ltd.
171)Murree Brewery Company Ltd.
172)Mustehkam Cement Ltd.
173)N. P. Spinning Mills Ltd.
174)Nadeem Textile Mills Ltd.
175)Nagina Cotton Mills Ltd.
176)Nakshbandi Industries Ltd.
177)National Foods Ltd.
178)National Refinery Ltd.
179)Nazir Cotton Mills Ltd.
180)Nestle Pakistan Ltd.
181)NetSol Technologies Ltd.
182)Nimir Industrial Chemicals Ltd.
183)Nimir Resins Ltd.
184)Nishat (Chunian) Ltd.
185)Nishat Mills Ltd.
186)Noon Sugar Mills Ltd.
187)Noor Silk Mills ltd
188)Olympia Spinning & Weaving Mills Ltd.
189)Olympia Textile Mills Ltd.
190)Otsuka Pakistan Ltd.
191)Packages Ltd.
192)Pak Elektron Ltd.
193)Pak Suzuki Motor Company Ltd.
194)Pakistan Cables Ltd.
195)Pakistan Hotels Developers Ltd.
196)Pakistan International Container Terminal Ltd.
197)Pakistan Oilfields Ltd.
198)Pakistan PVC Ltd.
199)Pakistan Refinery Ltd.
200)Pakistan Services Ltd.
201)Pakistan Synthetics Ltd.
202)Pakistan Telecommunication Company Ltd.
203)Pakistan Tobacco Company Ltd.
204)Pangrio Sugar Mills Ltd.
205)Pioneer Cement Ltd.
206)Prosperity Weaving Mills Ltd.
207)Punjab oil Mills Ltd
208)Quality Textile Mills Ltd.
209)Quice Food Industries Ltd.
210)Rafhan Maize Products Ltd.
211)Ravi Textile Mills Ltd.
212)Redco Textile Mills ltd.
213)Reliance Cotton Spinning Mills Ltd.
214)Reliance Weaving Mills Ltd.
215)Resham Textile Industries Ltd.
216)Ruby Textile Mills Ltd.
217)Rupali Polyester Ltd.
218)S. G. Fiber Ltd.
219)S. G. Power Ltd.
220)Saif Textile Mills Ltd.
221)Sajjad Textile Mills Ltd.
222)Sakrand Sugar Mills Ltd.
223)Samin Textiles Ltd.
224)Sanghar Sugar Mills Ltd.
225)Sanofi-Aventis Pakistan Ltd.
226)Sapphire Fibres Ltd.
227)Sapphire Textile Mills Ltd.
228)Sargodha Spinning Mills Ltd.
229)Saritow Spinning Mills Ltd.
230)Sazgar Engineering Works Ltd.
231)Searle Pakistan Ltd.
232)Service (Shoe) Industries Ltd.
233)Shabbir Tiles & Ceramics Ltd. **
234)Shadman Cotton Mills Ltd.
235)Shaffi Chemical Industries Ltd.
236)Shaheen Cotton Mills Ltd.
237)Shahmurad Sugar Mills Ltd.
238)Shahtaj Sugar Mills Ltd.
239)Shahzad Textile Mills Ltd.
240)Shakarganj Mills Ltd.
241)Shell Gas LPG (Pakistan) Ltd.
242)Shell Pakistan Ltd.

243)Sindh Abadgar's Sugar Mills Ltd.
244)Shield Corporation Ltd
245)Shifa International Hospitals Ltd.
246)Singer Pakistan Ltd.
247)Sitara Chemical Industries Ltd.
248)Sitara Energy Ltd.
249)
250)Southern Electric Power Company Ltd.
251)Southern Networks Ltd.
252)Suraj Cotton Mills Ltd.
253)Tandlianwala Sugar Mills Ltd.
254)Tariq Glass Industries Ltd.
255)Tata Textile Mills Ltd.
256)Telecard Ltd.
257)The Frontier Sugar Mills ltd
258)The Hub Power Company Ltd.
259)The Thal Industries Corporation Ltd.
260)Towellers Ltd.
261)TRG Pakistan Ltd.
262)Tri-Pack Films Ltd.
263)Unilever Pakistan Ltd.
264)United Brand Ltd
265)Wah Noble Chemicals Ltd.
266)Wyeth Pakistan Ltd.
267)Zahidjee Textile Mills Ltd.
268)Zeal-Pak Cement Factory Ltd.
269)Zephyr Textiles Ltd.