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CORPORATE GOVERNANCE AS A PREDICTOR OF LIQUIDITY MANAGEMENT

Dr. Muhammad Irfan Khan[1] and Dr. Samina Riaz[2]

Abstract

This paper is based on a novel theoretical model derived by the researchers to explain the patterns of corporate governance, firms' financial policies and liquidity position. A deductive approach has been adopted to reconcile and examine the model. The study has concluded that corporate governance is a significant variable in determining the liquidity position of firms. In this way, corporate governance becomes a crucial determinant of the liquidity management. This study also indicates that capital structure and the patterns of ownership play important roles in the determination of corporate governance of an institution. This is a value addition study in the existing literature in a sense that corporate governance is an exogenous as well as an endogenous variable in the model. The issue of liquidity crisis in the form of circularity debt, exist in the Energy sector of Pakistan, must be readdressed with the view point of corporate governance rather than from the aspect of financial management.

Keywords: Corporate Governance, Liquidity Management, Circular Debt, Ownership Concentration.

JEL Classification: G330

Introduction

It is astonishing that there is no globally accepted one definition of corporate governance. It unlocks the door to academic researchers and practitioners to explore the area in depth. Much of the literature divulges the variety of explanations. Corporate governance in Pakistan is in its developing stage and therefore its definition varies from institutions to institutions. It is the manner by which operations of companies should be conducted (Manual of CG, SECP, P5). The OECD provides its principles, addressing the corporate governance. All definitions have a basic idea of a system through which corporations are directed as well as controlled. Furthermore, corporate governance has many roots to relate, starting from firms' performance to economic growth. The formal and informal institutions in a country progress to undertake different economic activities. Practically, problem arises when some informal activities are found within the formal system of organizations. At times, organizations may be involved in these informal economic activities. They may take undue benefits of

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concentrated ownership, poor protection of shareholders in minority and accepting projects which may destroy the wealth of shareholders. These activities are termed as a problem of corporate governance. Economic governance studies the institutions and organizations while corporate governance deals with internal management of a corporation (Dixit, 2008). This paper takes up corporate governance perspective to support the argument that it can lead to proper liquidity management in a corporation.

The aim of this paper has two folds. First, it attempts to investigate the corporate governance practices being followed in the public listed firms in Pakistan. Some big families in Pakistan have more than one business. Transfer of one CEO to another company is a common practice which hinders the corporate governance practices. Similarly, managerial remuneration is also biased due to relationship based corporate governance structure. Salaries and other requisites are not performance based, rather determined either on political or relationship grounds. Therefore, Managerial remuneration scaled by capital is taken as the proxy of corporate governance. Secondly, the study aims to examine the issue of liquidity problem exists in the form of circularity debt exist mainly in the energy sector of Pakistan in relation to corporate governance. It is an attempt to explain not only the factors contributing good corporate governance but also to seek an understanding of its relationship with liquidity crisis with respect to circularity debt. The study has a fundamental premise that bad corporate governance is responsible for the existence of circularity debt. Pakistan has been facing this phenomenon for almost one decade. There were several solutions given but no one was long run. This study is an endeavor to recommend a long lasting as well as beneficial solution for both the government as well as all stakeholders.

Though, the energy sector of Pakistan can be described as the best case study to describe the role of financing and liquidity crisis where circularity debts have been highly debated in the public media. The outcome and conclusions are equally applicable in the rest of sectors and have their global implications in case of other countries also.

It is noteworthy that all efforts to resolve liquidity crisis and managing the circularity debt in energy sector have gone in vine. Why political will have become in vein? Why managerial and administrative measures have failed? Why issue has become chronic? Why the theories of financial management have failed in the practice? A gap has been ascertained in this research. It was pointed out that in applying the financial theories and taking managerial actions, the role of governance cannot be isolated. The bad governance is the root cause of economic deterioration, while governance is not a financial problem; it is a managerial issue.

Literature Review

Corporate governance has been defined by various researchers. Some researchers went on the agency problem due to the separation of ownership from agent i.e. management (Roe, 1994). Others discussed the phenomenon with reference to the methods that people employ to guard their happiness

in social exchange (Li & Filer, 2007). Shleifer and Vishny (1997) demonstrated a comprehensive definition of corporate governance by combining the above two. They explained it as the usefulness of mechanisms that lessen agency conflicts while putting particular emphasize on the legal mechanisms that thwart the expropriation of minority shareholders.

It is practically experienced in Pakistan particularly and the world, in general, that the corporate governance practices, in organizations differ significantly. In every country, there are companies which are being operated with different ownership structure, capital structure, board size, number of independent directors and the like. Cara, Tarek, Chong and Brian (2005) confirmed these variations which occur as a result of differences in institutional arrangements connected to business systems. These differences were also confirmed by Aguilera and Gregory (2003) and concluded that institutional differences matter by their capacity to support different modes of interaction among stakeholders at the firm level.

There are varying corporate governance systems and models. Relationship-based model and market model, which differs in relative efficiency, is an essential issue for many corporate governance researchers (John & Senbet, 1998). This issue becomes more enticement when these suitable corporate governance systems are selected by emerging markets to seek the implementation. Generally, market structures of emerging market differ from those of developed market and conventional governance systems show litter effectiveness. Majumdar and Pradeep (1999) focused the corporate governance in India and suggested that state ownership in financial institutions must be readdressed. Pakistan is a country where ownership is concentrated which distort the good corporate governance practices (Javid & Robina, 2010). Whenever debt is needed, banking channel is preferred as loan on a premium interest rate. This leads to a conclusion that relationship based model of corporate governance is preferred in Pakistan. Managers used to enjoy the relation with bankers and take loans to increase the market value of the firm which may result the bankruptcy in future. The only objective of managers is to receive high perquisites without considering the future outlook of the firm. As compared to external governance mechanisms, internal governance mechanisms of control are dominated in firms. Capital market is in its development stage, weak-form of efficient stock market and lack of an active market of corporate control due to concentrated ownership. Furthermore, market incentives are poor due to the existence of market anomalies and misconduct.

The corporate sector of Pakistan is dominated and controlled by founder families or group of families. For instance, one family owns several firms not only in the same industry but also diversified in other industry as well. Ownership is surrounded among them and their decisions are dictated. Oman, Fries and Buiter (2003) revealed that the main impending conflict of interest in the market of developing, transition and emerging countries are likely to mount not between manager and owners of a corporation as seen in the US and the UK but among controlling shareholders and other scattered shareholders.

Liquidity Problem in the Form of Circularity Debts

Circular debt arises when one entity faces problems in its cash inflows and consequently fails to discharge its obligations. Similarly, second entity does not receive its payments; it further withholds the disbursement to other entity. As a result, this perturbs all segments of the payment chain. Payable of one organization becomes receivable for another organization. When subtract one from the other, these should be cancelled out or the difference should be smaller in number. In case of energy sector in Pakistan, this amount was estimated to be Rs.537 billion as on June 30, 2011 and Rs.872 billion as on June 30, 2012, account for roughly 4% of the nation GDP (Planning Commission of Pakistan, 2013). How much liquid balance is held by a corporation is influenced by factors such as transaction costs, opportunity costs and informational asymmetries (Bruinshoofd & Kool, 2004). Informational asymmetries between firms and capital markets are an important precautionary motive for corporate liquidity demands. Opler, Pinkowitz, Stulz and Williamson (1999) introduced a useful structure for opinion about the possible factors because of which firms hold cash. Liquidity management of firms is essential as it is the base of arguments of overinvestment or understatement (Jensen, 1986; Jensen & Meckling, 1976; Myers & Majluf, 1984). The significant value of cash cannot be denied and therefore a liquidity management practice of a firm is vital for success of a firm. Kim, David and Ann (1998) developed a model based on cost-benefit trade-off between the holding cost of liquid assets and benefit of minimizing the need of profitable investment opportunities with costly external financing. The results show positive relationship between liquidity and cost of external financing. The study found that firms with hither market to book ratio have larger liquid assets while firm size is negatively related to liquidity.

Pakistan Electric Power Company (PEPCO) is an umbrella company which is responsible to collect tariffs from its customers and Government and disburse to its suppliers like IPPs, Oil and Marketing Companies (OMC) and gas companies. Cash outflows of the PEPCO are sure because these are obligation which has to be fulfilled. Cash inflows are uncertain because of absence or delay in tariffs payments. Sometimes government delays in subsidies while on the other hand, some powerful individual and government institutions withhold their payment. Ultimately this accumulates the receivable amount in the PEPCO account which results delay in payment to its suppliers which in turn seize payment to top of the segment. This imbalance of cash flows is one of the reasons of circularity debt. Table 1 shows the receivables from all distribution companies, called DISCOs from 2008-09 to 2011-12 alongwith their share in the total receivables. This is evidenced in the table 1 that poor revenue collection by PEPCO from DISCOs is one of the causes of circularity debt.

Table 1
Receivables from DISCOs (Million Rs.)

DISCOs	2008-09	2009-10	2010-11	2011-12	% Share
PESCO*	26,809	32,902	41,282	51,360	26%
HESCO*	18,856	25,454	33,344	44,237	22%
QESCO	4,297	5,238	24,780	48,193	24%
LESCO	10,957	15,968	17,081	23,080	12%
GEPCO	3,585	5,322	5,631	5,912	3%
FESCO	3,719	5,676	5,866	7,068	4%
IESCO	2,287	2,286	2,762	2,703	1%
MEPCO	7,252	10,505	11,900	14,638	7%
Total	**77,762**	**103,351**	**142,646**	**197,191**	**100%**

Source: Monthly Economic Review Saturday, 29th November 2014
*PESCO includes TESCO and HESCO includes SEPCO

It is reality that there is bulk amount of receivables in the books of PEPCO from DISCOs but on the other hand, DISCOs also have a huge amount of receivable from different provinces of Pakistan. Table 2 gives the fact of these receivables.

Table 2
Receivables of DISCOs from Provinces and AJK (Million Rs.)

Province	2005	2006	2007	2008	2009	2010	2011	2012
Punjab	(481)	(9)	(381)	162	(7)	3,263	5,371	5,842
KPK	239	398	652	254	601	1,144	19,427	19,792
Baluchistan	538	119	146	709	1,064	2,419	4,662	52,696
Sindh	341	2,382	3,224	7,603	14,241	25,790	39,230	6,200
AJ&K	(50)	485	756	1,216	2,391	4,393	9,888	15,953
Total	**587**	**3,375**	**4,397**	**9,944**	**18,290**	**37,009**	**78,578**	**100,483**

Source: PEPCO DISCOs Performance Statistics Report (FY 2005 – FY 2012)

Table 3 shows some highlights of the receivables and payables of public corporation in Pakistan for 2010 and 2011. It can easily be comprehended that receivables are greater than payables which implies that circularity debt is the governance issue which can be overcome through good governance. Zheka (2007) suggested positive relationship between improved liquidity position and

good corporate governance practices. García-Teruel, Pedro and Juan (2009) found inverse relation between accounting accruals quality and the cash level by firms.

Table 3
Distribution of Circularity Debt Receivables (Billion Rs.)

Company	Receivables	Payables	Net Position		Change
			30-Apr-11	**30-Apr-10**	
PSO	149	98	51	30	21
SSGCL	51	44	7	-1	8
SNGPL	11	25	-13	-9	-5
PEPCO	304	302	3	-40	42
OGDCL	116	0	116	80	36
PARCO	38	-	38	30	8
KESC	68	40	28	-24	51
GHPL	10	-	10	11	-1
PPL	22	-	22	26	-4
KW&SB	7	8	-1	0	-1
Grand Total	**775**	**517**	**259**	**104**	**155**

Source: Ministry of Finance

Methodology

Data, Variables and Technique

       This research is aimed at studying and exploring the corporate governance and liquidity crises through a model. In order to achieve these objectives, secondary data was collected through audited annual accounts of sampled companies from 2005 to 2011. Since some of government owned firms do not get their financials and other information disseminated, we have included only those firms for which audited annual accounts are available. Mainly, we focused on energy sector as it has been facing the liquidity problem in terms of circularity debt for many years. In order to separate government-owned firms from IPPs, firms with more than 60% shares are assumed to be government owned. Because of the nature of the models, 2-stage least square regression is appropriate to explain the phenomenon. Because of the binary dependent variable in the second model, logit regression was applied. Table 4 explains the variables measurement.

Table 4
Variables

Dependent Variable		Determinants		Independent Variables		Determinants
Corporate Governance	➢	A Ratio of Salary & Other Perquisites of Management to Capital	➢	Type of the organization	➢	Government or Non-government
			➢	Ownership Concentration	➢	Percentage of shares held by directors
			➢	Capital	➢	LTD+Equity
			➢	Distribution of Assets	➢	Current Asset / Fixed Assets
Liquidity	➢	Circularity debt	➢	Corporate Governance	➢	From Model 1
		1= circularity debt exist 0= otherwise	➢	LTD	➢	Long Term Debt
			➢	Cash Generated during the year	➢	Cash Flow to Noncash Assets
			➢	Corporate Assets	➢	Fixed Assets to Noncash Assets
			➢	Sales	➢	Log of Sales

Propositions

Proposition 1

- Firm specific factors explain corporate governance practices.

    Firm specific factors include type of the organization (ORGTYP), ownership concentration (OWNCONCT), log of capital (LOGCAP) and distribution of Assets (CAFA).

$$CG = \alpha_0 + \alpha_1 ORGTYP + \alpha_2 OWNCONCT + \alpha_3 LOGCAP + \alpha_4 CAFA \dots\dots\dots\dots (1)$$

Where α is the parameter.

This proposition leads to the following corollaries.

Corollary 1

        Public sector ownership of a firm affects the pattern of institutional governance.

Corollary 2

        Ownership concentration distorts the corporate governance practices.

Corollary 3

        The combination of debt and equity plays a pivotal role in determining the governance practices.

Corollary 4

        High amount of current assets lead to higher expenditures on top management.

Proposition 2

- Good corporate governance leads to better liquidity management in a firm.
  Circularity debt (CD) is the proxy of liquidity

$$CD = \beta_0 + \beta_1 CG + \beta_2 LOGLTD + \beta_3 CFTNAST + \beta_4 CAPEXPTNAST + \beta_5 LOGSALES \ \text{................ (2)}$$

By incorporating model 1 into it, we have;

$$= \beta_0 + \beta_1(\alpha_0 + \alpha_1 ORGTYP + \alpha_2 OWNCONCT + \alpha_3 LOGCAP + \alpha_4 CAFA) + \beta_2 LOGLTD + \beta_3 CFTNAST +$$

$$\beta_4 CAPEXPTNAST + \beta_5 LOGSALES$$

So we have

$$= \beta_0 + \alpha_0\beta_1 + \alpha_1\beta_1 ORGTYP + \alpha_2\beta_1 OWNCONCT + \alpha_3\beta_1 LOGCAP + \alpha_4\beta_1 CAFA + \beta_2 LOGLTD +$$

$$\beta_3 CFTNAST + \beta_4 CAPEXPTNAST + \beta_5 LOGSALES$$

While CG is the predicted values of corporate governance taken from model 1.
Where α and β are the parameters.

Followings are the corollaries of the proposition 2.

Corollary 1

        Circularity debt problem can be mitigated by good corporate governance practices. It will lead them to take decisions, for instance leverage, which is aligning with all the shareholders of the firm.

Corollary 2

Decisions of board of directors like investment in fixed assets, management of cash flow and growth in sales are very much related to liquidity management.

Table 5
List of Abbreviations of Variables

S.No.	Variable	Description
1	CG	Corporate Governance
2	ORGTYP	Type of the Organization
3	OWNCONCT	Ownership Concentration
4	LOGCAP	Log of Capital
5	CAFA	Current Assets divided by Fixed Assets
6	CD	Circularity debt
7	LOGLTD	Log of Long Term Debt
8	CFTNAST	Cash Flow to Net Assets
9	CAPEXPTNAST	Capital Expenditure to Net Assets
10	SALES	Sales Revenue

Theoretical Model

The model starts from the premise that corporate governance can be explained by firm specific as well as some exogenous variables. Any change in any of the exogenous explanatory variable will automatically change the corporate governance settings. The second part explains the causes of circularity debt which results the liquidity problem among firms. These causes are exogenous variables along with the predicted values of corporate governance taken from the first model. It is hypothesized that corporate governance can mitigate the problem of rising circularity debt exist in the economy.

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                    ┌─────────────────────────────────┐
            ┌───────┤      CORPORATE GOVERNANCE       │
            │       └─────────────────────────────────┘
            │                       ▲
            │       ┌─────────────────────────────────┐
            │       │      TYPE OF ORGANIZATION       │
            │       ├─────────────────────────────────┤
            │       │    OWNERSHIP CONCENTRATION      │
            │       ├─────────────────────────────────┤
            │       │             CAPITAL             │
            │       ├─────────────────────────────────┤
            │       │      DISTRIBUTION OF ASSETS     │
            │       └─────────────────────────────────┘
            │
            │       ┌─────────────────────────────────┐
            │       │    CIRDULARITY DEBT / LIQUIDITY  │
            │       └─────────────────────────────────┘
            │                       ▲
            │       ┌─────────────────────────────────┐
            └───────┤      CORPORATE GOVERNANCE       │
                    ├─────────────────────────────────┤
                    │         LONG TERM DEBT          │
                    ├─────────────────────────────────┤
                    │  CASH GENERATED DURING THE YEAR │
                    ├─────────────────────────────────┤
                    │         CORPORATE ASSETS        │
                    ├─────────────────────────────────┤
                    │             SALES               │
                    └─────────────────────────────────┘
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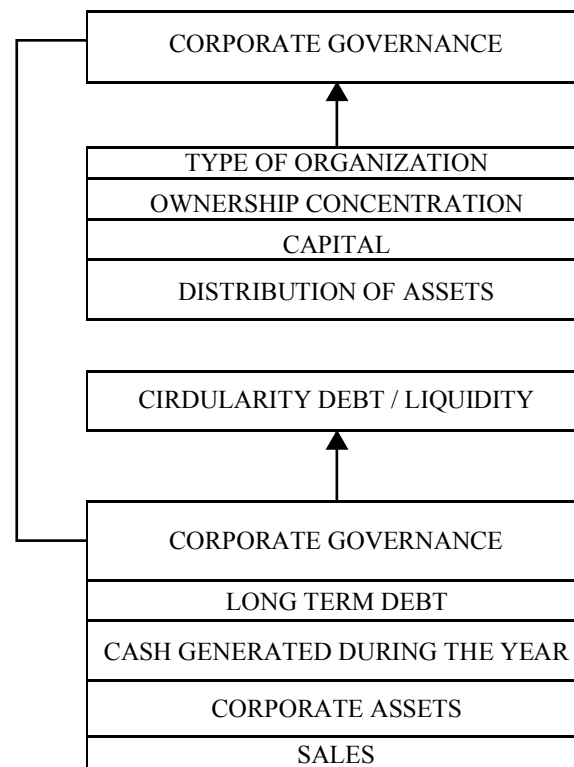
Figure 1: Theoretical Model

Results and Analysis

Determination of Corporate Governance

Table 6 illustrates the results of proposition 1. Type of organization is introduced as a dummy variable, taking the value of 1 in case of government-owned listed firms and 0 for private-owned listed firms. The results show that in the absence of private-owned listed firms, there is positive and significant relationship with the corporate governance proxy. It reveals that directors in the government-owned listed firms get benefit by increasing their salary and other perquisites. This evidence is supportive of the general arguments prevailed in the market and among institutional as well as individual investors. This depicts the bad corporate governance being practiced in government-owned firms. This is also one of the reasons as to why this sector is not helping common people in the form of providing proper electricity in the country.

Ownership concentration has a negative impact on corporate governance practices of firms. Corporations with concentrated ownership allow directors to get maximum benefit from the firm. Their salary and other perquisites are increased for nothing. If some controlling shareholders are dominant in the firm, they will enjoy this opportunity to be benefited from this option.

Capital also has negative and significant impact on corporate governance state of firms. As the capital increases, the ratio of salary and other perquisites of directors will be in a declining position and vice versa. Capital may be enhanced by increasing the debt or by issuing shares and raising the capital. Debt increase will also enhance the fixed costs of the company and can lead to bankruptcy position in future. It also strikes investors to start demanding higher equity return in the market. Share issue has an initial cost but feasible to most of the investors. It is, therefore, difficult to explain that this negative relationship is due to debt or equity level in the capital.

Investment decisions show the strategic direction of a firm. Larger investment in liquid assets restricts the firm to get benefit from growth opportunities exist in the market. Moreover, liquid assets also include cash balance which may be used to undertake any project without going into the market, hence no more monitoring by outside investors are needed. The result reveals that firms heavily invest in current assets as compared to fixed assets. It may be deduced that directors use this money on their discretion.

Table 6
Results

Proposition 1 Corporate Governance			Proposition 2 Liquidity as Circularity debt		
Variables	**Coefficient**	**Std. Error**	**Variables**	**Coefficient**	**Std. Error**
Intercept	-0.462	0.584	Intercept	-45.893	8.291
TORG	0.175* (1.941)	0.090	PREDCG	-2.547*	1.294
OWNCON	-0.012* (-4.744)	0.003	LOGLTD	1.845*	0.464
LOGCAP	-0.148* (-2.200)	0.067	CFTNAST	0.041*	0.016
CA/FA	0.015* (4.868)	0.003	CAPEXTNAST	-0.014*	0.008
			LOGSALES	4.201*	0.952
Adjusted R2	0.276				
F Statistics	16.837				

* Significant at the 5 percent levels.
t statistics are in parenthesis.

Reasons of Circularity debt

Since dependent variable in the second proposition is dichotomous, we applied logistic regression. Circularity debt is taken as a proxy of liquidity problem exists in public listed firms of Pakistan. It takes the value of 1 if any company faces this phenomenon and 0 otherwise. As expected, the negative sign of the corporate governance shows the acceptance of our hypothesis that circularity debt exists because of bad corporate governance in the energy sector of Pakistan. As discussed that the figures of circularity debt are the accounting treatment of receivables and payables. Since table 3 shows positive difference, it is evidenced that this problem is not because of financial management but of corporate governance. Corporate governance (PREDCG) is the predicted values taken from model 1 which means that it is itself the function of some exogenous variables. In other words, variables which explain the phenomenon of corporate governance is badly managed which causes the increase in circularity debt.

It is Interesting to note that an increase in long term debt is linearly related to the problem of circularity debt. Debt is used to finance any new project which is supposed to generate positive net present value in order to maximize shareholders' wealth. If LTD is used for this purpose, then there is economic significance of this result. This result does not follow either pecking order or free cash flow theory. The evidence of trade-off theory with respect to leverage is unknown. Poyry and Benjamin (2009) confirmed that in firms where state is the controlling shareholders, debt financing is seen more as compared to equity financing. Cash flow to noncash assets is also significantly positive which means circularity debt tends to increase with cash flows. This is consistent with the pecking order theory which implies that when cash flows are high, corporations use this cash to finance new projects, settle their liabilities, pay dividends and finally accumulate cash to manage working capital requirements. When we look at the result of capital expenditure to noncash assets (CAPEXTNAST), it is significantly negative, showing evidence that firms with high cash flows invest in fixed assets which cause to accumulate the amount of circularity debt. The remaining cash is kept a side for day to day activity.

Results show that an increase in sales also helps circularity debt to pile up. Since all sales are made on credit, we assume this result is as per our expectations. These credit sales are not converted into cash in near future, the amount of circularity debt increases. In other words, this result is following the pecking order as well as free cash flow theory. We can conclude this result by combining all variables into consideration. Companies make credit sales and somehow generate operating cash flows to fulfill the working capital requirements. Since this cash is not enough to finance new profitable projects, due to increase in receivables, they have to take long term loans.

Significant Contribution of Each Variables

Further, to check the significant contribution of each variable in the first proposition, this is

divided into four parts, explaining the corporate governance phenomenon in details as presented in table 7. The first part shows that corporate governance is positively affected by the type of organization. Since the dummy variable takes the value of 1 in case of government organization, this is evidenced now that government influences over the implementation of corporate governance practices. In addition to type of organization, the second part also incorporates the ownership concentration but the TORG variable becomes insignificant here. Ownership concentration gives evidence of negative impact on corporate governance. As stated earlier that Pakistan is the country where concentration is evidenced, this result was as expected. Part 3 incorporates capital in addition to above two explanatory variables. All three variables are significant. As expected, the sign of ownership concentration is negative. Type of organization is significant in this model because of inclusion of capital. This is again evidence that government organizations heavily invest in salaries & other perquisites of managers. The negative sign of capital indicates that as the capital deceases, the proxy of corporate governance increases which shows bad corporate governance practices. Finally, part 4 includes all explanatory variables, showing significant results. Corporate assets (CA/FA) have a positive impact on the corporate governance, indicating that firms heavily invest in current assets instead of fixed assets.

Table 7
Significant Contribution of each Variable

	Proposition 1 - LOGCG							
Variables	Part 1		Part 2		Part 3		Part 4	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
Intercept	-0.160	0.055	-0.012	0.062	1.248	0.498	-0.462	0.584
TORG	0.264 (3.050)*	0.087	0.118 (1.334)	0.088	0.222* (2.315)	0.096	0.175* (1.942)	0.090
OWNCON			-0.012* (-4.514)	0.003	-0.014* (-5.149)	0.003	-0.012* (-4.744)	0.003
LOGCAP					-0.183* (-2.552)	0.072	-0.148* (-2.200)	0.067
CA/FA							0.015* (4.868)	0.003
No. of Observations	166		166		166		166	
Adjusted R^2	0.053		0.148		0.175		0.276	
F Statistics	9.30		15.384		12.771		16.837	

* Significant at the 5 percent levels.
 t statistics are in parenthesis.

Conclusion

The present research is a blend of corporate governance and liquidity management. It develops a theoretical model, identifying antecedent variables which can better expound the given phenomenon. It has now come into the fact that liquidity crisis in firms can be managed if corporate sector plays its rigorous role to improve the governance state within the firm. Government of Pakistan must focus on the issue of circularity debt from the governance point of view rather from the perspective of finance. Government is responsible to create a business environment where transparent management of public finance becomes possible at the national level. In case the government regulation is not efficient, rules of conduct for the private sector are desired. Particularly, improving the corporate social responsibility and relevance of corporate governance are needed.

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EXPLORING THE BENEFITS OF ISLAMIC ECONOMY

Mehboob Moosa[1]

Abstract

This study aims at exploring the benefits of Islamic economy and its principles in accordance with the injunctions of the divine book of Holy Quran. The objective of the research is to investigate the Islamic Economic fundamental principles derived from the Holy Quran which is also supported by hadith literature. These principles have been extracted by some well renowned imams (Mujtahideen) i.e. religious scholars in the light of the Islamic sources of law, mainly, the Holy Quran and hadith. Islamic economic principles enjoin economic equitability according to which wealth should circulate throughout the society, which also contributes to the economic welfare, development and prosperity of the people living in the society.

Keywords: Exploring, Benefits, Islamic Economy, Holy Quran.

JEL Classification: Z000

Introduction

"Economics" is the scarcity of means and wants", which dealt with limited means with unlimited wants. The wants of a person are limitless and his assets are scarce. The economic system of Islam is built on the fundamental Islamic philosophies derived from the Holy Quran and Ahadeeth. These principles ensure justice, socially and economically, brotherhood, equal distribution of money and independence that are related to the welfare of the society and prosperity. On the other hand, the hold of Capitalism or Socialism is the source of injustice, socially and economically. In the religion of Islam, income and earnings sources must be Halal for the living of Muslim. Whatever one can earn must be by fair means. From these Halal earnings, a Muslim is required to annually pay "Zakat" (if he is a Sahib-e-Nisaab) and Sadaqaat (Optional) to the needy people. In this way he ensures Islamic equal distribution of money in the society.

Literature Review

In the Holy book of Quran, everything a person owns actually belongs to Almighty Allah,

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who assigns property to him. The verse of Holy Quran also elaborated the "Right of Property" (24:33). This verse clearly explains that the property of a person belongs to Allah, who has bestowed it upon him with restrictions mentioned underneath:

1. The person must distribute a certain portion of property to others.

2. Use your money according to Allah Almighty's orders, and do not spread disorders and ills on   land of Almighty lord.

Islam always appreciate the Trading done by the people. Religion of Islam is based on factor of "Barakah". By comparing the trade with the business, barakah is the prime component on which the religion is based, in fact it is not based on quantity. One must understand that on the Day of Judgment what one should return back when everyone is ready to take their examination.

Hazrat Rafio bin Khadij (R.A), narrated a hadith of the Holy Prophet (S.A.W) that superior earning is that which is earned through physical labor by adapting any trade which is carried on by without applying unfair means. (Ahmed)

Jabir-bin-Abdullah (R.A) also narrated the Hadith of the Holy Prophet (S.A.W) that Almighty Allah is kind enough to those people who facilitates the buying and selling of transactions. (Bukhari).

Islamic Economic Benefits

Economic balance is maintained. Islamic Laws really condemn the accretion of capital even lawfully earned. The Principles of Holy Quran also support the awareness of economic and social problems encountered by the people living in the society. Two of the major tools of balancing the economic well-being of common people are Zakat and Sadqah. Zakat is applied on certain portion on specific people fulfilling the criteria of giving the zakat and also specific criteria are also defined for the zakat takers. All the needy persons are not eligible for taking the amount of Zakat. As far as the Sadqah is related it is the charity for poor persons. Both of the factors, like Zakat and Sadqah plays a vital role for example; Zakat is to be paid in Shariah, which contributes towards helping the needy people. Likewise, Sadaqah (Charity) is also paid to the poor people. This plays an important role in shrinking the inequality in the society.

Larger number of market attraction. The basic differences in the products, offered by both Islamic financial sector and Conventional sector is the compliance of Sharia Principles as set by the Holy book of Quran. Looking at the ethical perspective of the feature of the product also which is very much in the Islamic products, attracted not only the Eastern market but also the Western market

Lucidity and clarity are promoted. The rules related to the Islamic financial products are very much related to nature, they are easy for comprehension and are also simple for the counter parties. For further guidance regarding the principles and laws, Islamic scholars are there for further elaboration.

Financial markets and economic activity. The Islamic economic transactions are asset based transactions. All the financial transactions are backed by assets. It has inherited risk mitigation factor and its reliance is not on the hypothetical values, which result in increase in Market share.

Crises in economy are avoidable. Islamic Financial assets have in built anti-crisis code (Jakhongir Imam Nazarov, 2011). Financial Crisis 2007 – 2008 could have been avoided, if that were also based on assets and not on interest based financial instruments.

Economy Development: Whenever the economic transactions are based on "Asset" instead of "Interest", it will always flourish the economy. Secondly, investment in the sharia compliant product is also deemed necessary. The organization must also initiate some social activities. Such organizations should make attempts to circulate money among the poor too, like the giving of Zakat and Sadqah to poor to make their economic life better.

Long-term Investment Opportunity. In the conventional system for the long term invest, the financial product of "Bonds" are there whereas, in the Islamic Financial system instead of Bonds, Sukuk as a financial instrument is available for long term investment opportunity. Sukuk can be issued for expansion of manufacturing concern or some other plant expansion.

Effect of damaging goods and practices is decreased. In the Islamic Shariah, speculation, interest, cloning, gambling and weapons causing mass destruction are forbidden so practicing Muslims stay away from these unlawful transactions and practices. In this way, there is a decrease in the effect of damaging goods and practices.

Efforts for achieving greater stability. People want the system to be lucid and responsible because during economic crises the conventional financial system was unable to deliver and a positive change was needed. The system should be helpful to poor by increasing employment rates, giving promotion to genuine products and economic activities, besides being in favor of rich too.

Islamic Trade and Economics. Industry and trade are crucial for the economic activity of any of the respective country. Quran and Sunnah have provided clear directions according to which commodities which are benefiting and lawful are allowed and those that are damaging or unlawful are not allowed. In the Holy Quran and at numbers of places "Riba" is prohibited and "Trade" is promoted. One of the extract of Quranic verse is "And Allah has permitted the Trade and prohibited Riba" (2:275). Islam and Quran also prohibit the spreading of unlawful act. Through trade only one person is not benefited but it's a chain cycle and a number of persons in the society are benefitted. Furthermore, the stocking

of the goods for getting its benefits in future is prohibited in Islam [Ahmed-Bin-Hanbal: 19802]. With reference to the context of a hadith, the Holy Prophet (May peace be upon Him) directed not to make deal about the purchase of goods from a seller who does not possess the goods.

Financial Derivatives: An Islamic View. Financial transaction of Islamic product is not only based on asset backing and ethical perspectives but it should not be done unless and until the possession and ownership of goods is transferred from one party to another. Ibn Abbas (May Allah be pleased with Him) narrated the Hadith of Allah's Messenger (May peace be upon Him) that "Don't sell or buy foods or grains before the seller has taken possession of it." (Muslim).

Fundamental Principles of Financial Transactions. The religion of Islam is a peaceful religion. All the fundamentals and living guideline are for the peace of an individual also and it warns and protects the person from any of the harmful effects. For example in selling and buying goods, the goods should be possessed by the person selling them which avoids the uncertainty. The financial transactions must follow the two Islamic principles that it should be Riba and Gharar free.

Islamic Economics: Need and Nature. Islamic Economics is said to be the study of the progress or welfare of human beings which can be attained by equal distribution of the resources present on earth. As given in the Holy Quran, it has been asked to make a decision about welfare at the cultural, spiritual, political and economic level.

Approaches of Islamic Economics. The Islamic Economics studies teaches us to attain welfare and progress in accordance with Shariah. It takes into consideration the effect of Islamic principles. It forbids Riba because it just accumulates the single amount and stops the well-being of the society. Whereas, the concept of zakat promote the welfare state and reduce the poverty which also eliminates the crime in the society.

Need for Islamic Economics. The behavior of people, society and companies under Capitalism is studied by the modern economic system. This behavior has the roots of injustice and selfishness. In comparison, a firm belief in Allah, and a reward in Hereafter is considered by the Islamic economics. Therefore, the economic activities of people are found on the injunctions of Islam, i.e. instead of fulfilling wants, the welfare of people is given more importance. In Islamic economic system, an economist is considered as the architect of the society because an economist examines behaviors of individuals in accordance with Shariah and he also puts forward suggestions covered up by Shariah. In Shariah the equal distribution of money is very important.

Trust (Amanah) is the basis of all economic principles. Due to this, economic evils like inflation, price hike and hoarding are discouraged. Since every person does his best to seek God Almighty's pleasure, people keep the commandments of Allah (Shariah) before their interests, hence eradicating any chances of conflicts.

Methodology and Findings

The researcher referred Quran, Ahadeeth and other related research papers, related books and publications in order to verify the data.

1. The findings of the study suggest that, if the Islamic economic principles along with commandments of Allah are strictly followed and implemented, it will emerge a new economic welfare society, development and prosperity.

2. The Economic System should be based on the principles of Quran and Sunnah, which will eliminate the inequality in the society.

3. The Islamic concept can effectively remove the chronic economic illnesses, monopoly and dominancy of resources as faced by the Modern Society.

4. A large number of research articles have been written, books have been published, conferences have been conducted and research papers have been produced in order to highlight the significant importance of Islamic economy and its principles.

5. This decade had brought good impression that Islamic economic principles are gaining popularity in the right track. In this regard, the publications on Islamic economics and Islamic financial institutions have been accepted in the area of Islamic banking and finance.

6. The primary focus on Islamic finance observes that 'the industry has realized the importance of academic research and the growth seems adequate to the Islamic finance industry.

7. The collaboration of Academia and Industry is the need of time for further exploration of new financial products, which must be the alternate of conventional products.

Discussion

Islamic Principles of Economics

It should be clear and understood in the very beginning that Islam is not an economic system. Rather, it is a "Deen". The principle of which pertains to each and every course of business. One of them is Economy. So, there is no particular philosophy or rule written in Qur'an and Hadith. There is no direct discussion about allocation of resources, distribution of income, determination of priorities and development in Islamic Fiqh. But, Islam has given some principles regarding economy like other spheres of life. Out of these principles, we are able to understand the point of view given by Islam regarding these economic problems.

The following is the meaning of a verse from the Holy Quran.

> *"We have divided the economy among them and made some of them superior on some others so that they can help each other in doing their work."*

Therefore, it is very much clear that the one who provides his services is supply and the one who takes it is demand**.** Through interaction of supply and demand, an equitable economy can be established.

At the beginning of Islam, when rural people used to take their produce to the city in order to sell it, some urban people used to say to the rural person that don't sell your produce in the city on your own. Sell your produce to me first and then I will sell the produce in the city when the appropriate time comes so that higher prices may be received.

Hazrat Muhammad (S.A.W) said,   the meaning of which is as follows.

> *"Let people be free so that Allah gives some of them food through some other people"*

So, Hazrat Muhammad (S.A.W) restricted the presence of the third person between buyer and seller so that the true equilibrium of supply and demand is established. Logically speaking, if the rural individual sells the products on his own, he will sell it without storing it. He will have to go back to his village. But, if some urban person purchase the product and then sell it, there is higher probability that he will wait for the time at which he draws maximum price. He will store the goods and create temporary shortage in the market.

When the question of setting market prices was asked from Hazrat Muhammad (S.AW).
(He replied, the meaning of which is as follows.)

> *"Undoubted, Allah is the one who sets market prices. He who reduces supply and expand it. And He is the best provider."*

Accepting that Allah Almighty sets prices is the implied acceptance that Allah Almighty has set the natural principles of supply and demand which determines the market prices. Setting artificial prices without taking natural market forces into account is disliked.

It is very much clear from the aforementioned sayings of Quran o Sunnah, that Islam accepts the market forces of supply and demand utterly. Similarly, the right of profit motive is also acceptable. In Capitalism, there is an absolute and unconditional right given for private profit and market forces.

This is the reason why already discussed deficiencies are created. Contrarily, Islam accepts the right of profit motive and principles of market forces. It does not permit someone to harm the entire society and the system. Islam imposes certain conditions and stipulations on these rights so that economic and social evils of the society are eliminated.

The following are the conditions imposed on the profit motive:

Devine restrictions

Islam imposes certain conditions on the economy which can be implemented irrespective of the society and time. For instance; Interest, Gambling, etc. are strictly prohibited in the Muslim economy. These things usually create monopolies and create disturbances in the society. Similarly, the things which are responsible for hurting ethical and moral values are also prohibited.

It should be very much clear that these prohibitions are from Allah for all mankind. Islam does not leave it on humans to decide whether this is beneficial or not. Had these decisions been made by humans, there would have been disagreements among different people based on personal traits and geographical locations. One thing which is true for one person or place may not be true for another person or place. That's why, Allah Almighty knows that these restrictions are necessary for all the people irrespective of place, that's why Allah made it concrete through Wahee (Revelation), so that a man based on his own logic will not disturb the society and economy. So it is very much clear that these conditions and stipulations which are imposed by Quran o Sunnah, are practicable whether the rationale of the stipulated principles are understood by the people or not.

As discussed previously, some of the capitalists' nations have imposed certain laws and regulations on the market structure but these stipulations are not enough and lacks what is actually prohibited by Quran and Sunnah. For instance, interest, gambling etc. are legally allowed in the Western nations that create economic disturbances.

State Restrictions

In Sharia's point of view, it is allowed for the government to restrict trade of the goods which are not haram and comes in the category of Mubah but for the given point in time it creates social ills. For instance, government can restrict the trade of melon if cholera exists in the society. So, buying and selling of melon is prohibited from sharia point of view until the restriction of the government prevails. Exclusive material in the form of books on this particular subject matter "Sadd-e-Zaraae" has been written by sharia' scholars.

By this principle, government can impose rules and regulations for the welfare of the economy or save the economy and society from illness. Once Hazrat Umer (R.A) saw that one seller is selling the products below the market price. Hazrat Umer (R.A) said, (the meaning of which is as follows).

"Whether increase the prices or leave the market"

The reason of the above statement is not written in the books. But the reason why Hazrat Umer (R.A) restricted that person not to sell the product below the market price may be he thought that low selling price causes harm to other sellers at large. Or maybe he was of the point of view *that* low selling prices result in excessive consumption or storage by the consumers. Basic Sharia's principle permits the seller to sell the product at whatever price. Selling on the low price in the above case is permissible by Sharia' but Hazrat Umer (R.A) restricted that person because of the societal issue at large.

The government can enforce conditions of this sort due to permission granted in a verse of Holy Quran, the meaning of which is, O' believer, obey Allah, and obey prophet (Peace be Upon Him), and those who have authority over you.

The verse mentioned above explained the difference between compliance of orders set by Almighty Allah and Prophet Muhammad SAW and by the people in power. The orders set by people in power should only be followed, when it is in compliance with Almighty Allah and His Prophet's teachings. This should clarify that Governments cannot enforce these rules without limits. The rules and restrictions should be aligned with Sharia.

Need Assessment and Government Authority

So, if the government imposes certain law in the absence of societal needs, that law is prohibited and one can terminate this in the court of law.

Moral Restrictions

As discussed earlier, Islam is a Deen not an economic system. Islam teaches all sphere of life including economics. Islamic teaching regarding economics clearly shows that material well-being is not an end. Quran o Sunnah emphasized that the worldly life is a short term life and the life hereafter is immortal that will never end. Human beings should devote their energies for making this world as a means to achieve a good end. i.e. the life of Hereafter. So, making more and more money is not success. Rather, success lies in the work beneficial for the life hereafter.

The way to achieve this end is the work done in this world most liked by Allah Almighty. When this thinking is developed in human mind, then he will not only consider material things to make money but he will also consider the acts done for the benefit of life that will come hereafter. There are certain situations for which mandatory orders are not exclusively given by the Allah Almighty but benefits of such acts are disclosed. In relation to it, a human can impose certain restrictions on himself.

One of the simple examples of such situations is as follows. If a person has an option to

develop and construct an amusement park which is more profitable than the projects of constructing homes for poor people having low profits. Then, a person of secular mind would choose the project of amusement park while a person having religious mind will opt for the home construction project for poor people because he considers the benefits of the life hereafter.

In the aforementioned situations, Shariah allows either project but the one who has fear of Allah and belief on the Day of Judgment would impose moral restrictions on himself. This moral restriction helps determining better allocation of resources and better distribution of income. This was the simple example; if belief on the Day of Judgment is strong then it leads to prosperous economic conditions.

The researcher does not oppose the fact that Un-Islamic societies do have moral values which have positive effects on the economy, but as they are lacking in the faith of the Day of Judgment, the entire benefits of moral values are not achieved. Contrary to this, Islam, with its full implementation, has much more positive economic effects. So, moral restriction in Islam pertaining to the economy is not weak rather, it has much more value.

The following are some of the illegal sources, as per the teachings of Quran and Sunnah:

a. Other Muslims' Belongings (Al Nisa 29:4)

b. Corruption / bribe (Al Baqara 188:2),

c. Deceiving (Anfal 27:8)

d. Mesir / Gambling

e. Unwanted Gifts to office bearers

f. Prostitution

g. Drugs and alcohols

h. Hoarding

i. Extortion, Cheating and Robbery

Conclusion

In the light of the above findings and discussion, the researcher concludes that the Muslim societies should explore the benefits of Islamic economy by adopting the Islamic economic system which will bring justice and economic welfare to the society and avoid the Riba based economic system which ultimately creates injustice and brings economic crisis to the society.

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LEADER-MEMBER EXCHANGE, JOB STRESS, AFFECTIVE COMMITMENT, AND JOB SATISFACTION: IMPLICATIONS FOR TURNOVER INTENTIONS USING COVARIANCE-BASED STRUCTURAL EQUATION MODELING

Muhammad Shahnawaz Adil[1], Ayesha Awais[2] and Imran Khan[3]

Abstract

This study analyzes the effect of LMX on employee job satisfaction, affective commitment, job stress, and turnover intention (TOI). Using a-priori statistical power analysis 300 responses are taken from the manufacturing companies of Karachi, Pakistan. Five different measuring scales are used to ascertain the research objectives. CMV bias is assessed using Harman's and CLF methods. A covariance-based measurement model is developed using CFA approach which demonstrates high construct reliability, convergent, and discriminant validity. Finally, covariance-based SEM technique is used to test six hypotheses. The results show that LMX and affective commitment reduce TOI, however, LMX is found to have a positive impact on satisfaction which has a positive effect on affective commitment. Besides, stress is positively correlated with TOI. The significant original contribution to the knowledge of this study is that LMX can be positively related with occupational stress, particularly in manufacturing companies. Therefore, manufacturing firms should deploy such organizational practices which could reduce job stress and intent to leave the organization.

Keywords: Job Satisfaction, Affective Commitment, Turnover Intention, Organizational Practices, Job Stress.

JEL Classification: Z000

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Introduction

Leader-member exchange (here-in-after called 'LMX') theory has attracted numerous empirical and theoretical contributions in organizational studies (Liden, Wayne, & Stilwell, 1993). Previous leadership related theories were centered around personality traits of a leader however, LMX theory specifies the dyadic (or two-way) connection between leader and follower where the term 'dyadic' refers to the two-way interaction between a pair of individuals (Dulebohn et al., 2012; Graen & Uhl-Bien, 1991). The LMX theory has received some gradual evolution in the last couple of decades however, the central idea of the theory remains unchanged. Recently, Sheer (2015) argued that interaction-based exchange behavior has been less emphasized in the literature so far as compared to the characteristics of leaders and the very association amid member and leader.

LMX Theory

The LMX theory (Graen & Uhl-Bien, 1995) is built on the social exchange theory (Blau, 1964) which involves four evolutionary stages: a) vertical dyad linkage; b) LMX; c) leadership making; and d) team-making. Firstly, a vertical two-way (called 'dyadic') interaction is built between a follower and his/her leader as soon as the individual joins a team. Theoretically, the individual remains in the 'unknown zone' in the eyes of the leader until s/he is given an assignment. With the help of this official assignment, the leader makes an attempt to carefully evaluate the competencies of the follower. One of the plausible objectives of this exercise is to assess the specific work unit where the follower could perform his/her best. It results in the role-making stage where the leader assigns a particular role for the individual. This is recognized as the phase where the leader intuitively categorizes the subordinate either in the 'out-group' or 'in-group' domains. Predominantly, there are different bases of this categorization such as member's capability to prove his loyalty towards leader, trustworthiness, and the follower's combination or portfolio of competencies. This constitutes the phase of routinization where leader builds a strong belief about the subordinate.

Turnover Intention in Manufacturing Jobs

One of the major characteristics of a successful organization has been its ability to attract and retain skilled workforce whose needs get changed over a period of time (Aghazadeh, 1999). Karachi, the biggest financial and commercial center of Pakistan, not only fascinates a vast majority of national and multinational manufacturing organizations but also gives access to Karachi via three completely-operational container terminals. This remarkable benefit of doing business in the city enables employers to gain access to a wide range of semi and highly-skilled employees from across the country. It results in a tough hyper-competition among employers in retaining their key human resource. They believe that senior employees learn a number of organizational capabilities over a period of time therefore, they tend to make efforts to reduce TOI of their regular employees (Adil & Awais, 2016).

A large number of multinational corporations in the city has implemented contemporary information and communications technologies (ICTs) for product designing and manufacturing processes (e.g. computer-aided manufacturing or CAD/CAM). Besides, the employers are also increasingly establishing a high-speed communication networks to connect their distant manufacturing facilities situated within as well as outside the county having different time zones. Moreover, they have also heavily invested in implementing one large corporate-wide integrated information system (e.g. SAP). This situation originates a wide spectrum of fierce competition among market players because it has become increasingly very easy to attract highly-skilled and well-educated technologically-savvy workforce from one manufacturing organization to another by offering them competitive salaries and value-added fringe benefits. Employees are therefore, compelled to seriously start thinking of quitting their jobs and join rival companies in order to receive better incentives within the same city. Therefore, manufacturing sector in Karachi has been overwhelmingly affected by the high rate of employee's TOI (Adil, 2015).

Interestingly, both academicians and manufacturing professionals may find the roots of the aforementioned problem in the LMX theory where the leadership either increases or decreases the power distance (Hofstede, 1983) with followers. At one side, the management encourages every possible ways to optimize organizational communications however on the other side they tend to classify their workforce in either high or low quality relationships. Despite the fact that a leader classifies his/her followers into these two categories of reciprocal relationship either intentionally or unintentionally, it severely hinders the way these followers perform their duties hence, they not only require higher job satisfaction but also tend to reduce occupational stress (Adil & Awais, 2016).

In fact, a highly-satisfied manufacturing workforce shows a high rate of affective commitment (AC) with their organization which ultimately reduces their TOI. There is no doubt that human resource management (HRM) practices could possibly enhance manufacturing performance (Adil, 2015) but employees' dedications with higher-order competencies could also reinforce the organizational ability to meet its mission and manufacturing objectives. However, to make sure that these employees would stay in the organization for a more drawn out timeframe, different antecedences such as satisfaction, commitment, stress, etc. are essential (Ansari, Hung, & Aafaqi, 2007). In short, LMX theory plays an integral role in reducing the rate of TOI causing a positive step towards organizational stability in Pakistan.

Exclusive nature of LMX relationship in Pakistan

In contrast with the Western context, the LMX relationship in the manufacturing organizations in Karachi may pose different practical implications. For example, high-quality relationship is established with sub-ordinates considering two different schools of thoughts. First, few line managers tactfully identify talented people from the pool of employees and then begin a relatively meaningful relationship with them to merely meet their departmental goals. These sub-ordinates start to understand

that they are closer to their superiors hence, they hold a high-quality relationship including trust and likeability. Consequently, it increases their motivation level to produce better results for the same managers. Recently, using a multi-group mediation analysis, Adil and Ab Hamid (2017) reported that LMX relationship partially (or complementary) mediated the positive connection between one's feeling of vigor and his involvement in creative task. In short, the school-of-thought encompasses the vested interest of line managers to merely exploit the competencies of their talented sub-ordinates.

Nevertheless, the second school-of-thought is held by those managers who properly follow the aforementioned four phases of LMX theory. This reflects a true implication of LMX theory which involves a pool of subordinates who are selected based on their performance shown from the given assignments. A team of in-group is formed which usually lasts for more time and the in-group members enjoy maximum possible benefits as the beneficiary of privileged class of people in the eyes of their managers (Hooper & Martin, 2008; Ma & Qu, 2010; Schriesheim, Neider, & Scandura, 1998; Vidyarthi, Liden, Anand, Erdogan, & Ghosh, 2010).

This study analyzes the effect of high-quality LMX on employee's intention to leave a manufacturing company in Karachi. This study has its theoretical and managerial implications because Pakistan has scarcity of leadership research including a few empirical evidences on LMX theory. For instance, previous studies (e.g., Imran & Fatima, 2013) have analyzed the implications of LMX theory with fragmented variables in different industries of Pakistan. However, none of these studies investigated the multivariate structural relationship amid LMX, job satisfaction, AC, stress, and TOI. Recent authors (e.g., Lee, Chae, & Shin, 2016) have also urged to study LMX in different social contexts. Besides, it extends the LMX theory to TOI in a presumably unique social context of manufacturing concerns in Pakistan. It attempts to guide practitioners in better understanding of the role of LMX relationship in mitigating the looming problem of TOI by answering the following research question:

Research Question

What is the impact of LMX on satisfaction, stress, AC, and TOI when controlling for employee's level of responsibility, work experience, gender and age?

Theoretical Background and Development of Hypotheses

LMX and Job Satisfaction

Indeed, the members who fall in the 'in-group' are the beneficiaries of 'high-quality exchanges' of a number of value-added support from their leader e.g. information sharing, access to available resources, timely job promotions, recognition, appreciation, best recommendations, etc. In contrast, members in the 'out-group' often suffer from 'low-quality exchanges' which comprise of

low trust, respect, and duties. The early studies of LMX theory have concluded that the leader retains a small number of 'in-group' relationships because of his/her limited time and social resources (Graen & Uhl-Bien, 1995). In essence, members of the high-quality relationship with their leaders maintain high working standards with relatively better work progress than their counterparts. Therefore, LMX theory has been attributed with employee's performance in the form of organizational outcomes viz. TOI, organizational citizenship behavior, organizational commitment, job satisfaction, organizational justice and dysfunctional conflicts.

LMX relationship is classified into high and low quality of reciprocal association between leader and each of the followers in the work unit. By virtue of high-quality LMX relationship, the member tends to gain access to a wide range of occupational benefits and rewards. It increases the job satisfaction among the 'in-group' employees hence they are considered as the privileged class in the organization (Graen & Uhl-Bien, 1995). Thus, it is quite evident that employees with high job satisfaction tend to fulfill their job effectively and efficiently (Lapierre & Hackett, 2007). LMX with high quality relationships are linked with subordinates who receive increased access to rewards and well-informed communication which raises employees' job performance and job satisfaction. Hence, the following hypothesis is formulated:

H_1: LMX relationship has a positive effect on job satisfaction.

Job Satisfaction, Affective Commitment and Turnover Intention

Job satisfaction and AC reflect a long-standing relationship in the literature of organizational studies. AC is one of the three types of organizational commitment where the employee shows his/her commitment towards the organization at his/her will (Meyer & Allen, 1991). It is largely because of the fact that he/she is very much pleased with a number of noticeable aspects within the organization e.g. competitive salary package, career growth, learning opportunities or professional development programs, flexible work hours, timely recognition of efforts, international work exposure, etc. (Islam & Siengthai, 2010). In short, a satisfied person tends to reflect more AC towards the organizations thus utilizing every available opportunity for self-development (Meyer, Srinivas, Lal, & Topolnytsky, 2007).

Whilst establishing the unidirectional relationship of satisfaction with TOI and organizational commitment, Cheung and Wu (2012) ascertained the similar findings and concluded that job satisfaction increases with the increase in commitment however, negatively related with TOI. Moreover, Adil (2016) examined the influence of change readiness on employee commitment to a technological change and in turn, on their active and passive change-related behavior. If a leader successfully maintains high-performance work system (HPWS) in the organization, it serves as a very effective motivating tool for increasing various organizational outcomes (Ang, Bartram, McNeil, Leggat, & Stanton, 2013) e.g. work engagement, loyalty, job satisfaction and AC thereby reducing

TOI (Adil, 2014; Alvi, Hanif, Adil, Ahmed, & Vveinhardt, 2014).

More recently, A'yuninnisa and Saptoto (2015) have argued that AC mediates the negative relationship between pay satisfaction and TOI. Based on the above-mentioned theoretical connections, the following two hypotheses are posited:

H_2: Job satisfaction has a positive effect on affective commitment.
H_3: Affective commitment has a negative effect on turnover intention.

LMX Relationship, Stress and Turnover Intention

The organizational members are sensitively closer to their leader than the organization. They are continually motivated by the streams of actions what their leaders wish them to adopt. Over the period of time, the working conditions reinforce the member to further reflect upon the LMX relationship. Although, extensive researches have focused on the association between social support and job stress (Viswesvaran, Sanchez, & Fisher, 1999), a little evidence is available which relate role stressors and LMX as measures. With this perspective, Landry and Vandenberghe (2009) scrutinized LMX, commitment, employee-supervisor conflicts and supervisor-based self-esteem. The results revealed that AC, supervisor-based self-esteem, and LMX shrink the association and substantive conflicts among boss/supervisor and employees. In short, an improved quality of LMX relationship will further relax role stressors which could in turn, increases employee satisfaction with job and decrease TOI (Ghosh, Reio, & Bang, 2013). Similarly, Firth, Mellor, Moore, and Loquet (2004) reported that lack of supervisor support caused stress. Hence, the following hypothesis is suggested:

H_4: LMX relationship has a negative effect on job stress.

Numerous authors (e.g. Eatough, Chang, Miloslavic, & Johnson, 2011) have studied role stressors which shape one's attitude and behavior to observe organizational outcomes may also have some serious repercussions on organization itself in the form of high employee turnover rate (Wallace, Edwards, Arnold, Frazier, & Finch, 2009). These variables (stress, in particular) are largely influenced by LMX thus, has a very strong bond with TOI (Mayo, Sanchez, Pastor, & Rodriguez, 2012). Recently, Adil and Awais (2016) has also reported a decrease in TOI with an increase in LMX. There is a well-accepted view in the eyes of both academia and professionals that LMX relationship has negative relationship with TOI (Elanain, 2014). Hence, the following two hypotheses are formulated:

H_5: Stress has a positive effect on turnover intention.
H_6: LMX relationship has a negative effect on turnover intention.
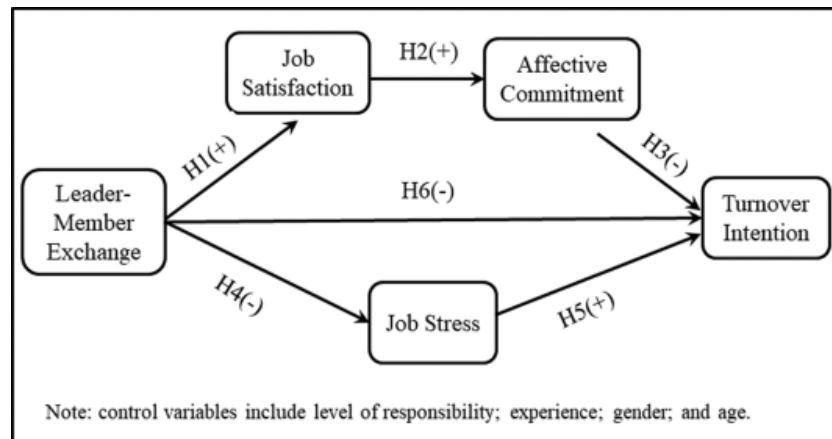
Figure 1: Conceptual framework of the present study

Method

Statistical power and the minimum required sample size

While estimating the minimum sample size, it is extremely important to increase the extent to which one could clearly differentiate between the null and alternate hypotheses using significance tests (Faul, Erdfelder, Lang, & Buchner, 2007). Thus, a statistical analysis of power was carried out in this study before estimating the sample size for the use of a series of SEM equations.

For this purpose, *a-priori* power analysis (Cohen, 1988) was used in G*Power version 3.0 package (Faul et al., 2007). In fact, this is a widely-used free sample-size calculator which requires five necessary parameter values to estimate the minimum required sample size to identify a) required effect size, b) model structure, and c) the recommended minimum sample size. These five necessary parameters include effect size, statistical power, no. of latent variables, no. of observed variables, and Type-I error rate. There were 32 five-point Likert-scale items which were expected to converge on five latent variables (namely, LMX, AC, job satisfaction, stress, and TOI). Accordingly, to meet the research objectives of this study, the following values were provided: large effect size, statistical power (0.80), five latent variables, 32 indicators, and 95% CI.

Sample and procedure

Based on the statistical power analysis discussed above, the G*Power calculator recommended a minimum required sample size of 269 to detect the required effect size and model

structure is at least 269. In short, this was the minimum number of sample size to detect a large effect size for SEM. Therefore, considering potential extreme values (outliers), 300 responses was collected from the manufacturing firms of Karachi on a self-completion questionnaire written in English by using a non-probability convenience sampling method. Removal of 29 outliers at 99.99% CI (p<.001) resulted in a useable sample of 271 responses (300-29) which exceeds the minimum required sample size as suggested by G*Power.

In a sample of 271 cases, the respondents were mostly in the age range of 25 to 30 years (M = 2.62; SD = 1.40), and 77.1 percent were male. Over 52 percent respondents held a Master's degree (SD = 0.77), and 44.6 percent of the respondents were serving at the middle management level in their respective organizations (SD = 0.94). Besides, 53.5 percent respondents had more than 5 years of experience (M = 2.31; SD = 0.82). A detailed demographic account is presented in Table 1.

Table 1
Composition of Data (n = 271)

Variable	Characteristics	Frequency	Percent
Gender	Male	209	77.1
	Female	62	22.9
Age	Less than 25 years	55	20.3
	25 to 30 years	109	40.2
	31 to 35 years	40	14.8
	36 to 40 years	29	10.7
	41 to 45 years	29	10.7
	46 to 50 years	7	2.6
	above 50 years	2	.7
Marital Status	Single	155	57.2
	Married	116	42.8
Qualification	Diploma	20	7.4
	Bachelor's degree	81	29.9
	Master's degree	141	52.0
	Others	29	10.7
Level of Responsibility	Non managerial staff	57	21.0
	Supervisor	63	23.2
	Middle management	121	44.6
	Senior management	30	11.1
Experience	Less than 2 years	62	22.9
	between 2 to 5 years	64	23.6
	More than 5 years	145	53.5

Measures

The study used five latent variables including LMX relationship, job satisfaction, stress, AC, and TOI. They are measured by using 32 questionnaire items measured on a 5-point Likert-type scale and unless otherwise specified. There were no sub-scales or dimensions to any of these constructs. In addition, the reliability of each of the five measuring scales (discussed below) was assessed with Cronbach coefficient alpha. Reliabilities of all variables ranged between 0.68 and 0.93 (Nunnally & Bernstein, 1994). Moreover, employee's level of responsibility, work experience, gender and age were taken as control variables during each hypothesis testing using covariance-based SEM. Following is the description of the measuring scales used in this study:

LMX

The scale of Lee, Scandura, Kim, and Lee (2012) was used for measuring LMX. A sample item reads, "My leader recognizes my potential well enough". Cronbach alpha = 0.86.

Job Satisfaction

Seven items from the revised version of the Minnesota Satisfaction Questionnaire (Weiss, Dawis, & England, 1967) were used to measure job satisfaction. A sample item reads, "The chance to tell people what to do." These items were rated on a five-point Likert-type scale ranging from 1 (very dissatisfied) to 5 (very satisfied). Cronbach alpha = 0.79.

Affective Commitment

AC was measured by eight items adapted from Allen and Meyer (1990). A sample item includes, "I would be very happy to spend the rest of my career with this organization". Cronbach alpha = 0.91.

Job Stress

Stress was ascertained by six items from the component of stress of Occupational Stress Inventory (OSI-R). A sample item was as under: "I am expected to perform tasks on my job for which I have never been trained". Cronbach alpha = 0.68.

Turnover Intention

TOI was measured by a total of five items jointly taken from Liu, Cai, Li, Shi, and Fan (2013), Long, Thean, Ismail, and Jusoh (2012), and Bushra (2012). A sample item reads, "I often feel

that I should quit". Cronbach alpha = 0.93.

Analysis

The following sections include principal component analysis, confirmatory factor analysis, and assessment of common method bias with the help of both Harman's single factor and CLF tests in SPSS and AMOS respectively. Finally, the testing of six hypotheses using SEM in AMOS.

Exploratory Factor Analysis (EFA)

Five variables were emerged from the 32 indicators during EFA. The value of KMO was 0.83 therefore, the sample is sufficient enough to run EFA. The Bartlett's test (Chi-square = 4072.056, DF = 276, p = .000) depicts that the identity matrix is not present in the correlations (Leech, Barrett, & Morgan, 2005). These five factors explained over 67.62 percent of the total variance (see Table 2). The minimum Eigenvalue was 2.10.

Table 2
Exploratory Factor Analysis (N = 271)

Latent Variable	Indicators	Factor Loadings	Alpha	Eigenvalues	% of Variance	Cumulative %
Turnover Intention	TOI_3	.93	0.93	4.11	17.11	17.11
	TOI_4	.88				
	TOI_5	.88				
	TOI_1	.86				
	TOI_2	.85				
Affective Commitment	AC_6	.89	0.91	3.79	15.77	32.88
	AC_7	.87				
	AC_8	.84				
	AC_5	.80				
	AC_4	.69				
Leader-Member Exchange	LMX_1	.84	0.86	3.38	14.10	46.98
	LMX_2	.80				
	LMX_3	.71				
	LMX_4	.70				

<div align="right">(Table Continued........)</div>

	LMX_5	.65				
Job Satisfaction	JS_4	.82	0.79	2.85	11.88	58.86
	JS_5	.76				
	JS_3	.74				
	JS_6	.68				
	JS_7	.54				
Job Stress	S_1	.79	0.68	2.10	8.76	67.62
	S_3	.69				
	S_4	.59				
	S_6	.52				

Notes: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Factor loadings less than |0.40| are omitted to maintain clarity. Values are rounded to two decimal places.

In fact, these five orthogonally-rotated factors constitute the final solution of EFA. Table 3 specifies the mean, SD and bivariate correlations between factors. The highest correlation was found between AC and LMX (*r = 0.48, p<0.01*). Substantial cross-loadings is not found in EFA solution and the highest correlation in the matrix is less than 0.70 ensuring the discriminant validity of the extracted factors because none of the factors explained majority of the shared variance i.e. 0.70 x 0.70 = 49 percent. Moreover, all 24 reflective items are converged onto their respective factors indicating convergent validity (Hair, Black, Babin, & Anderson, 2010).

Table 3
Means, Standard Deviations, Correlations, and Reliabilities (N = 271)

Latent Variables	Mean	SD	1	2	3	4	5
Turnover Intention	3.18	1.01	1				
Affective Commitment	3.79	.77	-0.18**	1			
Leader-Member Exchange	4.01	.62	-0.18**	0.48**	1		
Job Satisfaction	3.98	.55	-0.06	0.30**	0.39**	1	
Job Stress	3.76	.62	0.12	0.37**	0.47**	0.35**	1

Note: **. Correlation is significant at the 0.01 level (2-tailed).
Values are rounded to two decimal places.
SD = Standard Deviation

Measurement Model

A measurement (or outer) model was developed using CFA with configural invariance approach in AMOS Graphics version 22. It is *a priori* to the structural model in order to test hypotheses (Byrne, 2016). Therefore, to test whether the measurement model is 'psychometrically sound', composite reliability (CR) was estimated separately for each latent variable. AVE was estimated to ascertain the convergent validity. Furthermore, maximum and average shared variance (MSV and ASV) as well as inter-construct correlations were estimated to investigate the discriminant validity of the latent variables (see Table 4).

Interestingly, Cronbach alpha is also listed in Table 4 to compare it with the composite reliability. It can be observed that alpha shows an overestimate reliability statistic for job satisfaction and LMX, similar statistics for TOI and AC whereas, underestimated job stress. Therefore, CR is a better reliability predictor than alpha (Lin & Lee, 2005). As shown in Table 4, the AVE and CR of all of the five constructs exceeds 0.70 and 0.50 respectively suggesting an acceptable level of construct reliability and convergent validity of measurement model.

Table 4
Confirmatory Factor Analysis: Reliability, Convergent and Discriminant Validity

Constructs	Reliability		Convergent Validity	Discriminant Validity						
	Alpha	CR	AVE	MSV	ASV	1	2	3	4	5
						Inter-Construct Correlations				
JS	0.79	0.74	0.59	0.21	0.08	**0.77**				
TOI	0.93	0.93	0.74	0.04	0.02	-0.05	**0.86**			
AC	0.91	0.91	0.72	0.28	0.15	0.20	-0.16	**0.85**		
LMX	0.86	0.84	0.52	0.47	0.25	0.46	-0.21	0.53	**0.72**	
Job Stress	0.68	0.73	0.57	0.47	0.19	0.28	0.02	0.48	0.69	**0.76**

Notes: All values are rounded to two decimal places. Square root of AVE is listed in bold face on diagonal. AVE = ($\sum$ squared standardized loading) / ($\sum$ squared standardized loading + $\sum$ IME)
CR = ($\sum$ standardized loading)^2 / ($\sum$ standardized loading)^2 + $\sum$ IME)
Where, IME (i.e. Indicator Measurement Error) = 1 - standardized loading
CR = Composite Reliability; AVE = Average Variance Extracted;
MSV = Maximum Shared Variance; ASV = Average Shared Variance

Moreover, to assess discriminant validity of the measurement model, in addition to estimating both maximum and average shared variance (MSV & ASV) we also applied Fornell and Larcker

(1981) criterion (Hair, Ringle, & Sarstedt, 2011; Henseler, Ringle, & Sinkovics, 2009). The AVE is greater than its respective maximum and average shared variances. Besides, according to Fornell and Larcker (1981) criterion, the discriminant validity can be established if the square root of AVE should be greater than its inter-construct correlations as shown in Table 4 on diagonals in boldface. We can observe that each square root of AVE is greater than its inter-construct correlations thus it can be concluded that the discriminant validity is also established (Hair, Sarstedt, Ringle, & Mena, 2012) endorsing that the measurement model indicates sound psychometric properties (Bhal, Gulati, & Ansari, 2009; Molina, Lloréns-Montes, & Ruiz-Moreno, 2007). The formula of estimating AVE and CR is shown in the bottom of Table 4.

Common Method Variance (CMV)

Before hypothesis testing phase, it is now considered an integral part of psychometric analysis to test the potential occurrence of CMV in the dataset due to method bias (Malhotra, Kim, & Patil, 2006). It refers to a situation in which the dataset involves 'something' which is actually external to the dataset. This 'external' aspect may either inflate or deflate the findings (MacKenzie & Podsakoff, 2012). Since, the study collected data from one common method (i.e. self-administered questionnaire), it used two different methods for the said purpose: a) Harman's Single Factor Test (Schriesheim, 1979) in SPSS; and b) Common Latent Factor (in AMOS) as discussed below:

Harman's test tests the hypothesis if only one unrotated factor explains majority of the variance. For this EFA is performed by restricting the SPSS software to generate only one single factor without rotation. The results show that only 28.17 percent variance is explained by only one factor which is less than 50 percent threshold value (Podsakoff & Organ, 1986; Scott & Bruce, 1994). It means that the dataset does not have any potential occurrences of CMV (Organ & Greene, 1981).

Moreover, for a further robust assessment of CMV, a CFA approach was also employed in AMOS by introducing a common latent factor (CLF) to capture the common variance among all of the Likert-scale (observed) items in the measurement model. The standardized regression weights of this model (with CLF) were compared with the standardized regression weights of the basic model (without CLF). There were no large differences (say, more than 0.20) therefore, we concluded that there were no CMV issues even with CLF method. In other words, this findings of this study is not influenced by CMV bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Discussion and Managerial Implications

Table 5 shows the results of six hypotheses testing using covariance-based SEM approach in AMOS. It includes unstandardized estimates with standard error, standardized estimates, critical ratio (i.e. unstandardized estimate ÷ standard error) and p-value. All of the variables have shown statistically significant relationship in predicting TOI. Cumulatively, all of the four predictors (viz. LMX, job

satisfaction, AC & stress) explained over 25 percent of the total variance (R^2) in predicting TOI of employees in the manufacturing sector of Karachi when controlled for their level of responsibility, work experience, gender and age.

Table 5
Hypotheses testing using SEM

	SEM Path[a]			Standardized Estimate	Unstandardized Estimate	SE	Critical Ratio	p-value
H1	LMX	➜	JS	0.52	0.40	0.07	5.85	0.000***
H2	JS	➜	AC	0.29	0.47	0.12	3.80	0.000***
H3	AC	➜	TOI	-0.19	-0.26	0.09	-2.92	0.004**
H4	LMX	➜	Stress	0.70	0.72	0.09	7.96	0.000***
H5	Stress	➜	TOI	0.28	0.46	0.21	2.22	0.026*
H6	LMX	➜	TOI	-0.27	-0.46	0.21	-2.22	0.026*

Notes: SE = Standard Error of the unstandardized estimates.
*** p < 0.001; ** p < 0.01; * p < 0.05
a. When controlled for level of responsibility, experience, gender and age.

The results reveal that LMX has significant positive effect on JS (*0.52; p=0.000*). Both constructs should be and are positively correlated thus, H1 is supported. Therefore, it is recommended that the LMX quality should be improved to observe higher job satisfaction. In addition, the results find that job satisfaction has significant and positive effect on AC (*0.29; p<0.000*) therefore, H2 is supported. Due to high-quality (in-group) LMX, at one side the job satisfaction of the member gets increased which results in more interactions with the leader. But on the other sides, these communications often provide a member of different opportunities to interact with other senior officials of other manufacturing firms. Consequently, the member is exposed to a number of better job opportunities in other manufacturing companies. Since the member is satisfied with the job and intends to observe further professional growth which s/he might not forecast in the current organization. Albeit, s/he enjoys a good LMX relationship with superiors but exactly at the same time, s/he may intend to explore better job opportunities with the help of those communications channels introduced to him/her by the leader. Eventually, it is very important in the manufacturing organization to note that the sub-ordinate may wish to stay in the organization until s/he does not avail any better job opportunity in the manufacturing industries.

This interesting situation may also be realized where 170 respondents (63.7 percent) hold at least master degree or above (see Table 1). In the manufacturing sector of Karachi, people having higher post-graduate qualifications tend to have better job opportunities. Despite they are satisfied with their current jobs there are a number of hidden problems that they preempt well before the time e.g. incivility acts to out-group members by their leaders at workplace (Leiter, 2013). The member starts to predict the potential situation in case if she is moved to the under-privileged ('out-

group') category of employees. As a result, she will have to face all those workplace incivilities e.g. harassment, unnecessary occupational stress, and above all forced involuntary turnover (Pearson & Porath, 2009).

In view of these unwanted circumstances, the person plans to leave the organizations in his/her good times with good employment reference letter from the leader even he/she holds job satisfaction. Therefore, it is highly suggested that the leader should not only be very cautious about the job satisfaction of the followers but also be very vigilant about the AC. Hence, it is quite evident from the results that JS and AC are the two complex concepts which still require 'well-informed' revision in the theory particularly in Pakistan.

Moreover, the outcomes support the rests of the four hypotheses. More specifically, AC has shown significant negative impact on TOI (*-0.19; p=0.004*). LMX relationship has been found positively related with stress (*0.70; p=0.000*) and negatively correlated with TOI (*-0.27; p=0.026*). Lastly, stress is found to be positively linked with TOI (*0.28; p=0.026*). Thus, except H_4, all hypotheses are supported. Figure 2 illustrates the 'unidirectionality' of constructs (Byrne, 2016).

These findings are important in further understanding the theoretical connection between high-quality LMX relationship and occupational stress. Moreover, the findings provide practical suggestions for the manufacturing companies in Karachi. For instance, the management of these organizations should note that the stress level of employees tends to increase when the management prefers to assign a number of operational tasks to their in-group subordinates than out-group employees. Consequently, a high rate of TOI may be observed. These findings are emerged from the manufacturing firms of Karachi.

Bold lines denote significant path. P-value is shown in parenthesis.

CMIN/DF = 2.94; NFI = 0.91; AGFI = 0.90; CFI = 0.93; RMSEA = 0.07

Control variables: Level of responsibility; experience; gender; and age
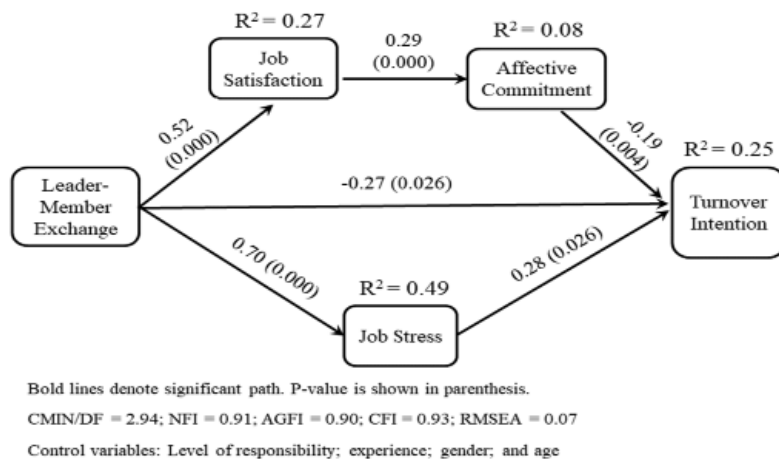
Figure 2: Structural relationship between LMX, job satisfaction, affective commitment, job stress, and turnover Intention

The high and low quality LMX relationship between leader and the member has shown major managerial implications to predict voluntary or involuntary TOI. Besides showing a significant direct association between LMX and TOI, there are other important variables which often emerge from LMX relationship but ultimately leads to TOI. Therefore, it should be of paramount interest for leaders to engage themselves in listening to the problems of their followers and adopt an attitude to realistically figure them out within financial constraints of the business. The central aim is to invest in human resource in such a manner that they could bring about their maximum effective and efficient output at the point in time when it is required. It is equally essential for the management to realize that they could not retain even their good employees for a longer period of time. By virtue of high-quality LMX relationship, these employees firstly enjoy their tenure in the organization and side-by-side they start searching better job opportunities from the contacts which leaders introduce to them in different social settings and occasions.

Theoretical Contributions

In light of high-quality LMX relationship and based on the results of the second hypothesis which has a large effect size and high statistical power, this study contributes in the LMX literature that high-quality LMX relationship may have a positive effect on stress. This is empirically tested in the manufacturing sectors of Karachi (Pakistan) using a covariance based SEM technique. This might be attributed to the fact that the stress level of employees tends to increase when they are engaged in a high-quality LMX relationship with the management who prefers to assign a number of operational tasks to the in-group subordinates than out-group employees. Consequently, it leads to increase occupational stress and ultimately, a high rate of turnover intention. In addition, this study is amongst the first reports on LMX relationship using boundary conditions in Pakistan. Moreover, it is also argued that Cronbach alpha overestimates the reliability measure thus, composite reliability should be preferred in non-recursive models (Lin & Lee, 2005; Molina et al., 2007). These findings extend our understanding about the theoretical connection between high-quality LMX relationship and occupational stress, in particular.

Conclusion

LMX theory has gained significant attention from both academicians and practitioners. It reflects the quality of relationship between leader and follower. It is argued that high-quality LMX relationship will trim down the chances of intent to leave a manufacturing company in Karachi. We analyzed the unidirectional impact of LMX relationship on JS, AC, stress and TOI in the manufacturing firms of Pakistan.

Future studies may further explore the impact of job satisfaction on continuance and normative commitment scales with some mediating or moderating constructs e.g. workplace incivility, organizational justice, occupational stress, organizational identification, or even 'low quality' LMX

relationship as moderator particularly in the financial (service), petro-chemical, pharmaceutical and bio-technology and automobile and spare parts sectors of Karachi. It could further reinforce our understanding of the theoretical and practical implications of LMX theory.

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INFLATION PERSISTENCE: EVIDENCE FROM PAKISTAN

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Abstract

The study aims to estimate the degree of inflation persistence by utilizing the standard econometric tools and different measures of inflation persistence covering the period from 1957Q1 to 2015Q2. Inflation persistence is analyzed for both quarter on quarter and year on year inflation series by exploiting the autoregressive and mean reverting characteristics of these series. The results of the study are suggestive of reasonably high degree of inflation persistence in Pakistan and provoke further studies to be conducted to establish its link with fiscal and monetary policies followed in Pakistan and that will be the future agenda of our research.

Keywords: Inflation Persistence, Monetary Policy, Autoregressive Process, Mean Reversion.

JEL Classification: E310

Introduction

It is a profound fact of the current era that inflation is a serious cause of concern for many countries around the world. This concern is not because it is intrinsically a bad thing but because of its adversities above its threshold based on its link with many other macroeconomic variables. A vital issue for monetary policy makers and theorists to confront with is the persistence of inflation. The reasons for interest in inflation persistence is due to its important role in designing the monetary policy, as it will determine the level to which authorities could maintain a reasonable level of both output and inflation and thus, the performance of monetary policy (Levin & Williams, 2003; Amato, et al., 2007; Wolters & Tillmann, 2015). Secondly, estimation of exact level of inflation persistence usually guides us to what degree the diverse macroeconomic models are consistent with empirical evidence. Acknowledged with this fact, literature evolves by inculcating a critical aspect of 'Inflation Persistence' into its domain. Inflation persistence has been captured in various ways by different economists and broadly the consensus has been established in characterizing the impulse response, serial correlation and mean reversion features of inflation series as important measures for its determination. The said measures are quite pronounced in existing literature and can be explored in

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various studies (Hassler and Wolters, 1995; Hsu, 2005; Lee, 2005; Noriega & Ramos-Francia, 2009; Cuestas & Harrison, 2010; Hassler & Meller, 2014; Antonakakis et al., 2016).

The diverse inflation patterns across the globe and even within an economic union have urged the researchers to identify the existence of inflation persistence and its underlying causes.[3] The study of various countries indicates that inflation truly is a persistent variable; moreover, the degree of persistence seems to be changing overtime (i.e. decades of low persistence followed by decades of high persistence) (Gali & Gertler, 1999). Economists tend to rationalize these varying episodes and different distinct patterns of inflation persistence in different economies; for this numerous factors are taken into account especially, policy regimes, regime shifts, historical background (i.e. pre and post war conditions[4], switch from gold standards to currency standards, episodes of monetary targeting), primitive or industrialized mode of economic setup are mentioned to be critical (Liven & Piger, 2003; Batini, 2002).

Monetary policy has been historically held responsible for ensuring price stability and reducing volatilities in terms of output gaps, interest rates and prices. Monetary policy rules, Central bank loss functions, Optimal monetary policy design embedded in hybrid New Keynesians micro based models, all reflect in one way or the other the emphasis on the role the monetary policy in targeting inflation (Gerlach & Tillmann, 2012; Cruijsen, et al., 2010). However optimal monetary policy design has often been found sensitive to the assumptions of the model about inflation. Empirical literature has mostly treated inflation persistence as exogenous within the framework of these models but current research is acknowledging this fact that endogenizing inflation persistence can change the results dramatically (Soderstrom, 2002; Levin & Williams, 2003; Levin & Moessener, 2005).

Researchers have also tried to establish a link between monetary policy regimes and inflation persistence. Modern literature is engulfed with numerous attempts of linking monetary policy regime shifts and their consequent impact on the degree of inflation persistence. Episodes of strict monetary policy stance usually yield an outcome in the form of low inflation persistence while loose stances correspondingly result in high inflation persistence (Doh & Davig, 2009).

In case of Pakistan's economy limited number of studies have focused on capturing the concept of inflation persistence. The study by Hanif et al. (2016) is the only prominent work in this dimension which explores the intrinsic nature of inflation persistence for Pakistan's economy. In that study the author utilizes monthly data to capture Inflation persistence through an AR process at overall and commodity level. Although our study is not destined on capturing inflation persistence at commodity level but at overall level it uniquely differs from the mentioned study on the following

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[3] E.g. European Union where harmony exists in pursuance of a common monetary and other trade related policies.

[4] This argument has been used by researchers in various studies of inflation persistence in UK and US referred to pre and post World War II period. For instance, see Alogoskoufis and smith (1991).

accounts: 1. Our study utilizes quarterly data on inflation and to cross validate the results inflation persistence has been estimated for both Year on Year inflation and Quarter on Quarter inflationary measures. 2. Secondly, our study, besides employing conventional AR(p) process (to estimate inflation persistence), also verifies the results through mean reversion analysis of inflation series; both with constant and time varying mean as mark of reference. This provides us with a margin to fill up this literature gap in case of Pakistan; however, such work is quite pronounced in studies at international level (Marques,2004; Hondroyiannis & Lazaretou, 2007).

The study is organized as followed: The second section presents the data sources and empirical methodology, section 3 makes a discussion on estimation results and section 4 concludes the study based on the empirical results and findings.

Data and Methodology

Data and its sources

The data used for this research has been taken from International Financial statistics (2015). Quarterly data on CPI is used to calculate both Year on Year inflation and Quarter on Quarter inflation for the chosen sample of 57 years from 1957Q1-2015Q2.

Methodology

Conventional AR (P) process

This procedure involves considering inflation simply to follow an AR process where order of AR is decided based on Schwartz and Akaike Information criterion. This is the simplest way to take a glimpse of the existence of persistence. The baseline idea is to estimate an equation in autoregressive format. The conventional way to proceed is to assume that inflation follows a stationary autoregressive process of order "p" which is written as:

$$\pi_t = \alpha + \sum_{j=1}^{K} \beta_j \pi_{t-j} + \varepsilon_t \quad \text{..} (1)$$

Where π is the inflation, $\sum \beta_j$ is the sum of autoregressive coefficients and ε_t is the serially uncorrelated error term. We can re-parameterize equation (1) as

$$\pi_t = \alpha + \sum_{j=1}^{K-1} \gamma_j \Delta\pi_{t-j} + \rho\pi_{t-1} + \varepsilon_t \quad \text{..} (2)$$

The parameter ρ in the above equation is the measure of inflation persistence. Model like described above is frequently used in current literature for approximating persistence in a series as inflation in current context[5]. According to the specified model inflation persistence is the pace with which inflation series reverts back to its equilibrium value after being hit by a shock, alternatively one could contend that persistence is captured by the time required for a shock to completely die off. Therefore, the larger the value of the ρ longer will be the span over which the impact of the shock would be spread out. This feature is also sketched by Impulse response function.

Mean Reversion property of Inflation series

Capturing inflation persistence based on mean reversion property of inflation series is also a popular analytical technique employed by researchers, where mean reversion is figured out by the number of times inflation series tends to cross its mean over the sample range. The greater the frequency with which inflation series crosses its mean the less will be the inflation persistence and vice versa. The embedded exposition of this idea is delivered assuming a constant and time varying mean. The following model discusses a brief summary of the entailed idea.

Equation (1) and (2) are transformed in order to incorporate structure of mean within the defined domain of these equations. Equation (1) can be modified in following manner[6].

$$(\pi_t - \mu) = \sum_{j=1}^{K} \beta_j (\pi_{t-j} - \mu) + \varepsilon_t \quad \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \quad (3)$$

Equation (3) can be transformed as follows:

$$d\pi_t = \sum_{j=1}^{K-1} \delta_j \Delta \pi_{t-j} + (\rho - 1)(\pi_{t-1} - \mu) + \varepsilon_t \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \quad (4)$$

It can further be rewritten for convenience as:

$$(\pi_t - \mu) = \sum_{j=1}^{K-1} \delta_j \Delta(\pi_{t-j} - \mu) + \rho(\pi_{t-1} - \mu) + \varepsilon_t \quad \dots \dots \dots \dots \dots \dots \dots \dots \dots \quad (5)$$

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[5] For instance see: Kota, (2011), Hondroyiannis and Lazaretou, (2004)

[6] The mean "u" can be accounted both for its constant pattern over time and time varying pattern. The study under discussion deals with both aspects.

Equation (5) can be estimated to acquire ρ which can further be utilized to calculate the term $\rho - 1$ as represented in equation (4). The term $\rho - 1$ represents the mean reversion, the higher the value of this term (absolute value), the stronger will be the mean reversion and the less persistent will be the inflation. Let us denote; $\eta = \rho - 1$, it can be observed that as $\rho \uparrow \ \eta \downarrow$ (*in absolute terms*) therefore we can say that inflation persistence term is inversely related with the mean reversion term (Marques, 2004).

Estimation, Results and Discussion

Quarter on Quarter Inflation

Estimating Inflation Persistence through AR (P) Process

To get a simple estimate of inflation persistence equation (2) has been estimated using simple ordinary least square. Numbers of lags for the difference term has been decided based on Schwartz or Akaike information criterion. Certain lags exclusion tests have been performed to select the appropriate numbers of lags. The estimated results of equation (2) are presented in table 1.

Table 1
Estimation Results AR(P) Process

Variable	Coefficient	Std. Error	T-Stat	Significance
Constant	0.7567	0.2132	3.348	0.000473
π_{t-1}	0.6096	0.0892	6.831	0.000000
$d\pi_{t-1}$	-0.2534	0.0879	-2.881	0.004357
$d\pi_{t-2}$	-0.3288	0.0754	-4.357	0.000020
$d\pi_{t-3}$	-0.2528	0.0655	-3.857	0.000150

Lags: 3   T-stat: 3.5487   The aic = 1492.13 and sbc = 1509.16
Durban Watson stats: 1.71

Inflation persistence is measured by the lagged inflation term . The value approximates to 0.61. This value reflects considerable amount of persistence in inflation patterns of Pakistan.

Mean Reverting Characteristics (Constant Mean Quarter on Quarter Inflation)

As explained before inflation persistence can also be traced by observing mean reverting patterns of inflation. The greater is the tendency of an inflation series to revert back to its mean value, the less persistence inflation will be and vice versa. In order to carry out this exercise structure

about mean should be properly analyzed. To give this discussion a more pronounced notion the visual inspection of the inflation series over the whole sample range will prove to be beneficial.
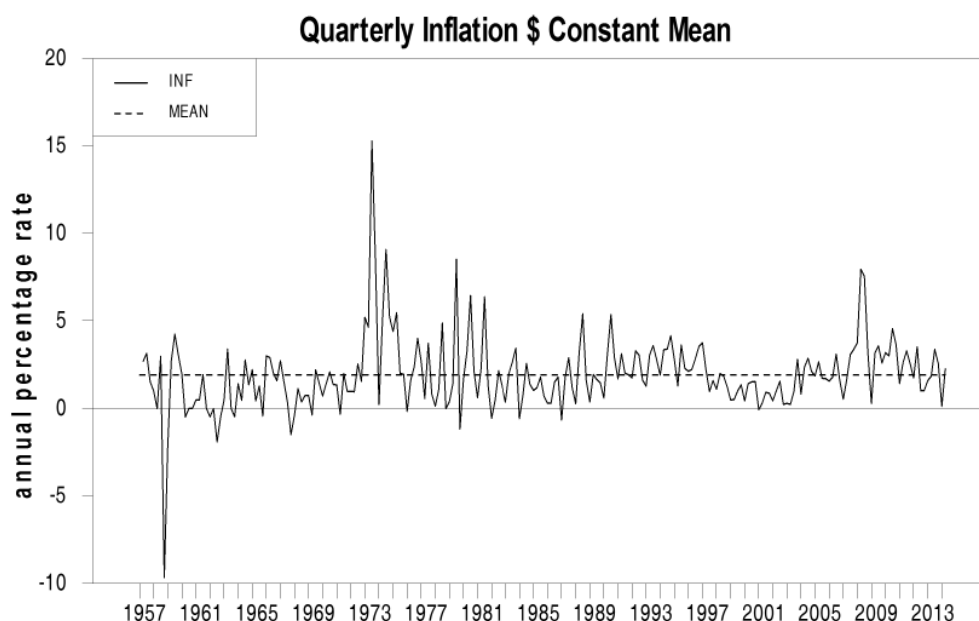
Figure 1: Graph I

A glimpse over the inflation series depicted in graph I reveals that over the sample range mean of this series be constant. Therefore, it is not harmful to examine the persistence property of this inflation series assuming a constant time trend or mean as represented by the dotted line pattern in the above mentioned graph. It is often referred that the mean reverting characteristics of a series also plays a critical role in analyzing its persistence. The frequent is the tendency of any series to revert back to its mean the less persistence will be the behavior of that particular series. In the same context equation (4) is estimated and the mean reversion term is observed to seek persistence of inflation in case of Pakistan economy. The results of estimated parameters represented in equation (4) are summarized in table 2 given below. Table 2 shows that the absolute value of coefficient of the mean reverting term is 0.40 which indicates that series display a scant tendency to revert to its mean. We can also find out inflation persistence term by adding 1 to the mean reverting term which comes out to be 0.60 nearly equal to what we had calculated using AR (p) process.

Table 2
Results Mean Reversion

Variable	Coefficient	Std. Error	T-Stat	Significance
$(\pi_t - \mu)$	-0.40185	0.0805	-4.99169	0.000001
$d\pi_{t-1}$	-0.21559	0.0795	-2.71075	0.00724
$d\pi_{t-2}$	-0.32370	0.0680	-4.75473	0.00000
$d\pi_{t-3}$	-0.24697	0.0591	-4.17817	0.00004

Lags: 3   T-stat: -4.99169   The aic =1437.65 and sbc = 1451.26
Durbin-Watson Stats: 1.90

Mean Reversion with Time Varying Mean (Quarter on Quarter Inflation)

Although the patterns of quarter on quarter inflation series are indicative of constant mean trend but to add more reliability to our estimates of inflation persistence we also estimate equation (3) using time varying mean. Time varying mean has been calculated by fitting a linear trend to the inflation series and using the fitted values as a proxy for time varying mean[7]. The results of the fitted equation are given in Appendix I. The estimates of equation (4) incorporating time varying mean are displayed in table 3.

Table 3
Mean Reversion results Time Varying Mean

Variable	Coefficient	Std. Error	T-Stat	Significance
$(\pi_t - \mu_t)$	-0.41524	0.08344	-4.34541	0.0000
$d\pi_{t-1}$	-0.20570	0.08113	-2.55579	0.0119
$d\pi_{t-2}$	-0.31669	0.06901	-4.04715	0.0000
$d\pi_{t-3}$	-0.24317	0.05945	-3.68876	0.0000

Lags: 3   T-stat: -4.97615   The aic = 1437.79 and sbc = 1451.40
Durbin Watson Stats: 1.89

The coefficient of mean reverting term $(\pi_t - \mu_t)$ has slightly increased in value in absolute

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[7] The results are also tested by fitting a quadratic trend to the series but proved to be insignificant.

terms as compared to the previous model. Its value with constant mean was 0.40 and with time varying mean is 0.41. Thus the tendency for the series in terms of mean reversion is still weak. We can also ρ calculate our estimate to take account of inflation persistence, the value of ρ tracks out to be 0.59 which is slightly less than as compared to the previous case. Therefore, we can conclude that in the presence of inherent constant tendency of mean as reflected in graph I the amount of bias generated through the use of constant mean is not significant that is why the results without accounting for time varying pattern and results with time varying patterns do not differ considerably. The graphical visualization of quarterly inflation using time varying mean is presented in graph II.
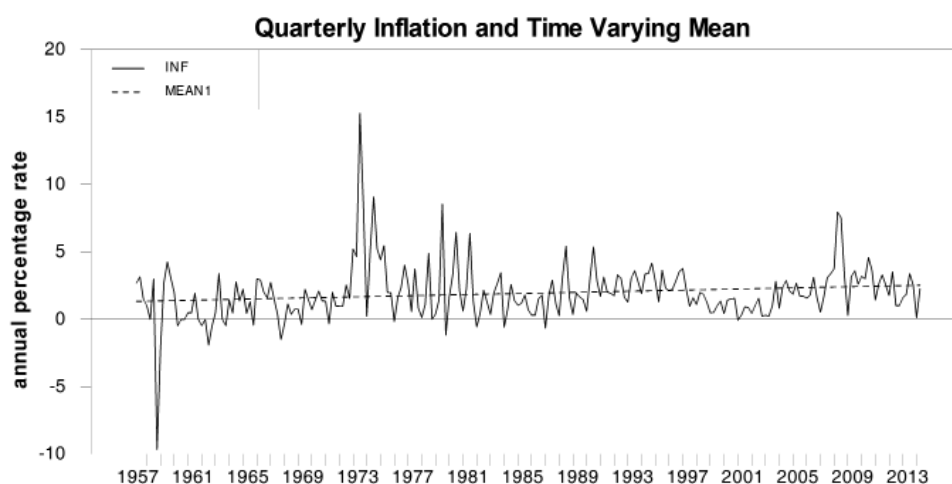
Figure 2: Graph II

Inflation Persistence AR (P) results (Year on Year Inflation)

It is now customary to exploit every possible dimension to explore the visible features of any concept from different angles. Therefore, it is suggestive to scrutinize inflation persistence based on the behavior of Year on Year inflation patterns apart from quarter on quarter patterns. This has an advantageous feature of depressing the impact of any seasonal effect in the series. The results of estimated equation (2) are displayed in table 4. Again, the coefficient of the lagged term reveals high degree of inflation persistence as represented by the value 0.87. The results are considerably different from what we had calculated in case of quarter on quarter inflation. This result is not surprising and specific to this study; numerous studies have observed similar variation in two different type of inflation series where the former indicates relatively low degree of persistence while later add more content to it.

Table 4
Inflation Persistence results AR (P) Process

Variable	Coefficient	Std. Error	T-Stat	Significance
Constant	1.06132	0.26611	3.988	0.00009
π_{t-1}	0.86876	0.02661	32.635	0.00000
$d\pi_{t-1}$	0.40466	0.06163	6.565	0.00000
$d\pi_{t-2}$	0.01488	0.07050	0.211	0.83305
$d\pi_{t-3}$	0.10288	0.06105	1.685	0.09341
$d\pi_{t-4}$	-0.33231	0.06159	-5.39	0.00000
$d\pi_{t-5}$	0.12579	0.06480	1.94	0.05359
$d\pi_{t-6}$	0.17825	0.06181	2.88	0.00434

Lags: 1   T-stat: 3.90625   The aic = 1469.77 and sbc = 1493.46
Durbin-Watson Statistic: 1.97

Inflation Persistence with Constant Mean (Year on Year Inflation)

The graph III presented below convincingly defines the sluggish behavior of inflation series in terms of mean reversion. We can compare the patterns of inflation series in the graph V with its behavior in graph I (quarter on quarter inflation). Once the series tends to deviate from its mean it takes quite a while for the inflation series to revert back again, this slack in the reversion process is indicative of high degree of persistence which is confirmed through estimated value of mean reversion term presented in table 5 subsequently after the graph III.
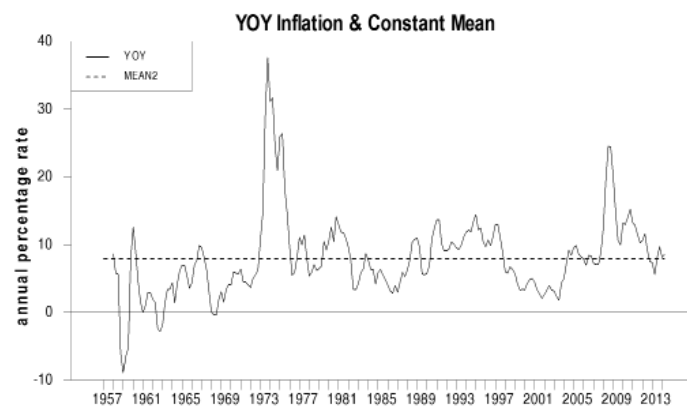
Figure 3: Graph III

Table 5
Inflation Persistence result with Constant Mean

Variable	Coefficient	Std. Error	T-Stat	Significance
$(\pi_t - \mu)$	-0.104	0.0266	-3.9062	0.00012
$d\pi_{t-1}$	0.426	0.0643	6.6267	0.00000
$d\pi_{t-2}$	0.014	0.0705	0.2110	0.83305
$d\pi_{t-3}$	0.102	0.0610	1.6852	0.09341
$d\pi_{t-4}$	-0.3323	0.0615	-5.3949	0.00000
$d\pi_{t-5}$	0.1257	0.0648	1.9409	0.05359
$d\pi_{t-6}$	0.1782	0.0618	2.8834	0.00434

The slack pattern of reversion of inflation series as evident from the above graph is fully testified with the parameter estimate of reversion term. The coefficient comes out to be 0.10 in absolute term which is smaller as compared to quarter on quarter inflation. The measure of inflation persistence traced out of this term is (1-0.10) = 0.90

Inflation Persistence with Time Varying Mean (Year on Year Inflation)

Since the pattern of year on year inflation as reflected in graph III portrays that it is not an appropriate strategy to assume a constant mean therefore it is desirable to fit a trend based on the movement of series overtime. After analyzing the significance of linear, quadratic and cubic trend fitted to the actual series results recommend the selection of cubic trend and treats the fitted values as a proxy for mean of inflation series. The whole exercise of determining the inflation persistence through its mean reversion characteristics as done before has been performed and visual and statistical results are reported in graph IV and table 6.
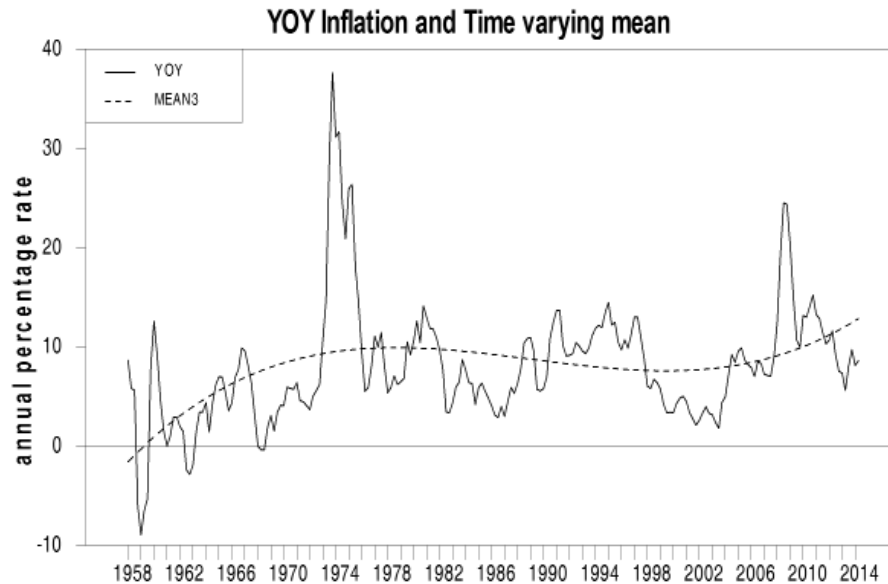
Figure 4: Graph IV

Table 6
Inflation Persistence Results: Time Varying Mean

Variable	Coefficient	Std. Error	T-Stat	Significance
$(\pi_t - \mu_t)$	-0.1440	0.0304	-4.728	0.00001
$d\pi_{t-1}$	0.4500	0.0639	7.034	0.00000
$d\pi_{t-2}$	0.0486	0.0706	0.688	0.49162
$d\pi_{t-3}$	0.1250	0.0607	2.059	0.04062
$d\pi_{t-4}$	-0.3053	0.0615	-4.964	0.00000
$d\pi_{t-5}$	0.1338	0.0638	2.095	0.03733
$d\pi_{t-6}$	0.2010	0.0615	3.268	0.00126

Lags: 6   T-stat: -4.728   aic = 1463.03, sbc = 1486.72   DW: 2.00

The patterns of the inflation series as evident from graph IV lead us to contend that the pace of mean reversion over different sample periods remained slow, especially in between 60's and 70's, 90's and 2000. A general impression is a weak tendency to revert back more often. The visual contention is confirmed from the absolute coefficient of mean reversion in table VII, which comes

out to be 0.14. Likewise, the persistence coefficient row can be inferred from this value that is, which is slightly less than what we had calculated in case of constant mean.

Inflation Persistence and Period by Period trend (Year on Year Inflation)

Another common way of resolving the issue of calculating time varying mean is to figure out period by period trend of inflation series and fitting the trend accordingly in compliance with the rising and falling patterns. The fitted values in turn are used as a proxy for mean. This method of calculating the time varying mean has been found in numerous studies. The procedure proceeds in following way:

$$\pi_t = \alpha_1\,T_1 + \alpha_2\,T_2 + \alpha_3\,T_3 + \alpha_4\,T_4 + \alpha_5 T_5 \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\text{ (i)}$$

Where T1 is the time trend of inflation from 1958 Q1 to 1973 Q2, T2 is the time trend from 1973 Q3 to 1975 Q4, T3 is the time trend from 1976 Q1 to 1997 Q1, T4 is the time trend from 1997 Q2 to 2003 Q3 and finally T5 is the time trend from 2003 Q4 to 2014 Q2. Equation (i) is estimated and the fitted values are extracted to be used as a proxy for mean of inflation. The results of estimated equation (i) and graphical exposition of fitted inflation series are given below.

$$\pi_t = 0.11\,T_1 + 0.38 T_2 + 0.07\,T_3 + 0.02\,T_4 + 0.05 T_5 \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\text{ (ii)}$$
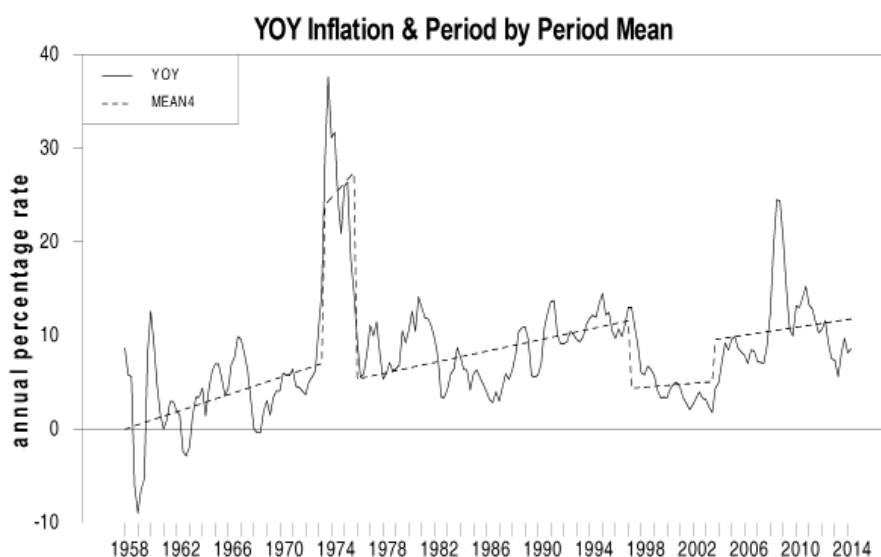
Figure 5: Graph V

Table 7
Period by Period Inflation

Variable	Coefficient	Std. Error	T-Stat	Significance
$(\pi_t - \mu_t)$	-0.24862	0.039	-6.22	0.0000000
$d\pi_{t-1}$	0.46862	0.061	7.57	0.0000000
$d\pi_{t-2}$	-0.0059	0.065	0.09	0.9273919
$d\pi_{t-3}$	0.1307	0.058	2.24	0.0259203
$d\pi_{t-4}$	-0.2743	0.059	-4.57	0.0000079
$d\pi_{t-5}$	0.1181	0.061	1.92	0.0559932
$d\pi_{t-6}$	0.1065	0.057	1.85	0.0653991

Lags: 5   T-stat: -6.22407 The aic = 1448.25 and sbc = 1471.94
Durbin Watson Stats: 1.91

The dotted line in graph V represents the fitted inflation series that has been driven out through the regression analysis of equation (i). Results of mean reversion behavior based on period by period fitted series are displayed in table 7.

Coefficient of mean reversion term in this case comes out to be 0.25 in absolute term, which again show low tendency of reverting behavior towards mean. However this value differs significantly from the mean reverting term in case of cubic fitted mean trend that was 0.14. The inflation persistence coefficient ρ inferred in this case is (1-0.25) = 0.75. The results of all cases discussed in this section are summarized in table 8.

Table 8
Summary

Method	ρ	$\lvert \rho - 1 \rvert$
AR(P) QOQ Inflation	0.60	
AR(P) YOY Inflation	0.87	
Mean Reversion QOQ Inflation (Constant Mean)	0.60	0.40
Mean Reversion QOQ Inflation (Time Varying Mean)	0.59	0.41
Mean Reversion YOY Inflation (Constant Mean)	0.90	0.10
Mean Reversion YOY Inflation (Time Varying Mean)	0.86	0.14
Mean Reversion YOY Inflation (Period by Period Mean)	0.75	0.25

Conclusion

Every economic problem in the current era is analyzed with the use of systematic techniques and procedures. This modern tendency of the current era has contributed a lot to the ongoing research in economic perspective. Following the same rigor researchers are keen to explain various dimensions relevant to "Inflation". Inflation is an economic problem which has been debated and articulated from various angles. This articulation is meant to highlight the consequences of being ignorant from considering inflation as a major economic problem.

Inflation has become a serious cause of concern for many nations and finding its root causes and severity in principle and its detrimental effects (persistence) in general has become the supreme agenda of policy institutes. The current study is an exploratory exercise for examining the existence of inflation persistence in Pakistan. Not much literature was available on this topic, therefore this research is considered as an additive note to the available literature on this subject.

The study sought to extract the inflation persistence for Pakistan's economy with some of the conventional tools used for this analysis. Assuming the autoregressive behavior of inflation supplemented with the tool of mean reversion, this study reports reasonably high level of inflation persistence in Pakistan over the course of selected sample range. The results are confirmed by assuming various ways of extracting the mean behavior of inflation series although a slight differential has been observed with relevance to assumption about the mean behavior (i.e. constant, time varying, period by period trend fitting etc.). These results will certainly provide a stimulus for the literature to be evolved in this direction and help policy relevance to be incorporated as well.

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UNCOVERING THE CONCEPT WORKPLACE OSTRACISM: A REVIEW ON SEQUENTIAL PERSPECTIVE

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Abstract

Although the concept of ostracism in general and workplace ostracism, in particular, has attained attention of researchers in the last decade; yet main focus remained on its psychological outcomes. Furthermore, management researchers failed to express the temporal nature of workplace ostracism based on comprehensive theoretical grounds. Thus, the present research has adopted an integrated review methodology to consolidate and synthesize the existing literature on the concept of workplace ostracism in light of conservation of resource theory (COR), social capital theory (SCT), social identity theory (SIT) and social exchange theory (SET). Data were collected from the electronic databases of PsycINFO, ProQuest, Emerald, Elsevier, Science Direct, Academy of Management, Sage, Willey Black well, Taylor and Frances along with the use of Google Scholar. The abstracts were examined and the relevant articles were selected and integrated. A sequential stage model of workplace ostracism has been proposed that uncovers its process in four stages i.e. exclusion, disassociation, depletion stage and repercussion stage.

Keywords: Integrative Review, Ostracism, Workplace Ostracism, Social Exclusion, Social Exchange Theory, Social Capital Theory.

JEL Classification: Z000

Introduction

James (1890) gave his historic statement about being ignored and deliberated that if no one gave attention to us, answered our conversations and be concerned with what we did, it would be like cutting us dead and making us feel non-existent. This behavior is more hurting than bodily torture and makes a person feel non-worthy of attention. This statement explains the intensity of being ignored

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and its impact on a person in the worst way mere by '*acts of omission*'. According to Williams (2001) ostracism occurs when a person is excluded, overlooked or gets ignored by members of a social group. Ostracism can occur in multiple settings, one of which is the individual's workplace (Hiltan, Cliffton, & DeSoto, 2006). The concept of ostracism is prevalent in diverse settings, with its roots embedded in sociology. Its origin is traced back to Greece where the individuals that were considered as a threat to the wellbeing of society were exiled by writing their names on clay shards named "ostraca" (Britannica, 2015). After that, the concept of ostracism gained importance in psychology, and its causes and outcomes were investigated from the perspective of human psychology (Ferris et al., 2008; Robinson, O-Reilly, & Wang,2013; Robinson & Schabram, 2019). Workplaces are an important context where ostracism occurs, so the researchers in the field of organizational psychology started investigating this concept from a business and management perspective and named it as workplace ostracism. Still, there is much room for investigating ostracism in work settings to understand its unique consequences (Al-Atwi, 2017; De Clercq, Haq, & Azeem, 2019; Fox & Stallworth, 2005; Robinson et al., 2013).

If we talk about such experiences in general and especially in organizational context i.e. not being invited in informal gatherings, being ignored in the formal meetings, and excluded from the communication of official information, it may seem that they don't carry much importance. According to research, workplace ostracism matters even more than being bullied and harassed (Robinson et al., 2013). It has been proven that being ostracized or ignored can result in a unique kind of pain that is similar to physical nuisance (Eisenberger, 2012; Riva, Wirth & Williams, 2011). Furthermore, it was revealed that workplace ostracism not only causes immense psychological distress; but it also results in attitudes that are counterproductive and decreases in the in-role performance and citizenship behaviors of ostracized individuals (Robinson et al., 2013). These findings are also supported by recent research on the topic of workplace ostracism (De Clercq et al., 2019; Yang & Treadway, 2018; Zhao & Xia, 2017). This makes it important to have a comprehensive understating of workplace ostracism concerning its consequences that are unique to organizational settings and how they uncover over the period (Mao, Liu, Jiang, & Zhang, 2018).

Research Gap

Some of the literature reviews have been conducted on ostracism and social rejection (see Table 1). Two meta-analyses have been carried out one having a focus on exclusion and self-esteem (Blackhart et al., 2009) and other elaborating behavioral responses (Gerber & Wheeler, 2009). Theoretical and narrative reviews are also undertaken that elaborate functions of social exclusion, the link of social exclusion to self-regulation (Kurzban & Leary, 2001; William, 2007; William & Nida, 2011) and consequences of social rejection depending on time and contextual factors (Richman & Leary, 2009). Although they provide a good theoretical understanding of the concept of ostracism or social rejection in general context yet none of them specifically targeted workplace ostracism as a unique construct. Till now only two integrated models of workplace ostracism have been presented

that offer propositions about its antecedents, potential mediators, moderators and impacts (Robinson et al., 2013; Mao et al., 2018). Williams (2007, 2009) devised a temporal need threat model (TNTM) of psychological responses to ostracism. We argue that the process and theoretical underpinnings that shape outcomes of workplace ostracism require similar attention and understanding.

Table 1
Summary of Review Studies on Ostracism

Type of Review	Topic	Number of Studies	Area	Authors Authors
Meta-Analysis	Social exclusion, Self-esteem, Behavioral responses	2	Psychology	Blackhart et al. (2009) Gerber & Wheeler (2009)
Narrative Reviews	Functions of social exclusion, link of social exclusion to self-regulation	4	Psychology	Kurzban & Leary (2001); Richman & Leary(2009); William(2007, 2009); William & Nida, (2011)
Systematic Review	Antecedents, outcomes, mediating and moderating mechanisms of workplace ostracism	2	Organizational Psychology	Robinson et al. (2013); Mao et al. (2018)

Source: Self-developed from the literature review

Research Aim

To fill this gap the present review aims to shed light on the comprehensive process through which workplace ostracism takes place in a series of steps and impacts work outcomes of individuals. Integrative review suggested by Torraco (2005) is a suitable method to synthesize the literature on this topic as it has contradictory findings (Mao et al., 2018), cuts across the disciplinary bounders from sociology to management sciences and it is a recently emerging concept since the past decade (Robinson et al., 2013; Robinson & Schabram, 2019). The present integrative review will not only incorporate the previous findings, but it will also further refine the models of social rejection and ostracism in light of existing theories. Devising a model of workplace ostracism that offers conceptual clarification of sequential stages in light of conservation of resource theory, social capital theory (SCT), social identity theory (SIT) and social exchange theory (SET) in pure organizational settings is the central point of this review.

Methodology

Research Design

The study relies on integrative literature review as a process of synthesizing and integrating the literature that is *"a distinctive form of research that generates new knowledge"* (Torraco,2005,

p.356). The integrative review is deemed to be a suitable method to synthesize the available literature on real-life emergent topics that have inconsistent findings, have cut across the disciplinary bounders and apply to multiple situations (Torraco, 2004, 2005). As the idea of ostracism is applicable to more than a limited, restricted situation and encompasses the disciplines of sociology, psychology and management science, it is an emerging concept that has gained recognition in past decade along with having relevance to life and real behavior (Williams, 2009; Robinson et al., 2013). That is why the concept of workplace ostracism is suitable for integration and synthesis given its limited theoretical foundation and conceptual models; it is multidisciplinary in nature and context-dependent disposition. The rationale of the selected methodology is shown in Figure 1.
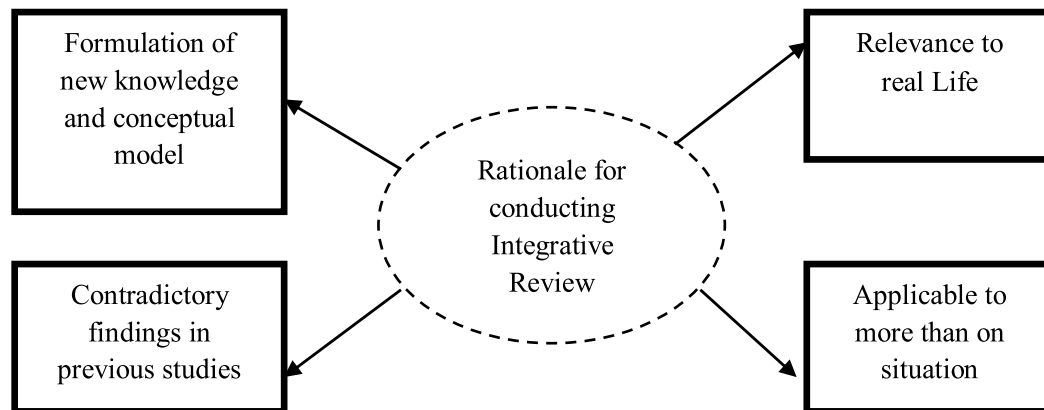
Figure 1: The Rationale for Selecting Review Approach
Source: Adapted from Toracco (2005)

Data Collection and Inclusion Strategy

The multidisciplinary approach was adopted (see Figure 2) and the articles on ostracism were reviewed from the fields of sociology, psychology, and management. The articles were searched based on keywords of ostracism, workplace ostracism, social exclusion, rejection, social exchange theory, social capital theory, social identity theory and conservation of resource theory. The electronic databases were used to search the relevant research papers namely *PsycINFO, ProQuest, Elsevier, Science Direct, Database of Academy of Management, Sage, Willey Black well, Taylor and Frances* along with the use of *Google scholar.* The relevancy of articles was ensured by reviewing the abstracts of all articles as per the recommendations of (Torraco, 2005). After that, the important points and contributions from all the articles were noted down and they were divided into sequential stages. After critically reviewing the literature it was synthesized into a coherent model that is presented at the end of the research.

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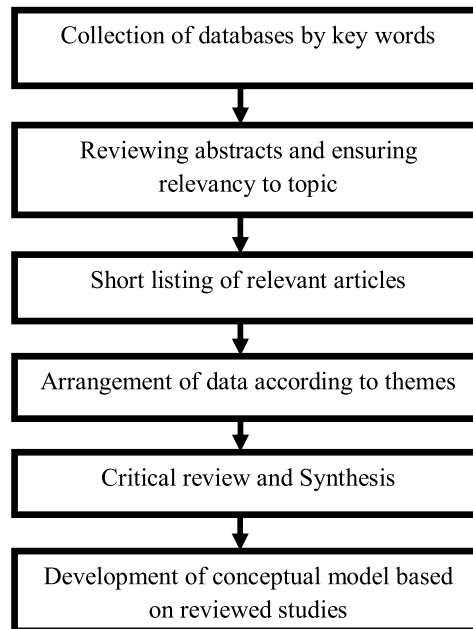
Figure 2: Phases in Selection, Inclusion, and Synthesis of Data

Integration of Literature on Workplace Ostracism

What is Workplace Ostracism?

It is essential to have a comprehensive understanding of workplace ostracism to clarify what is considered as ostracism and what is not. Various authors have given definitions of this concept in different contexts. They have grouped various kinds of behaviors that set a person apart from the group or excludes him from the group (Dotan-Eliaz, Sommer, & Rubin 2009; Blackhart et al., 2009; Anderson, 2009). Robinson et al. (2013) summarized the major conceptualizations of ostracism and related constructs and gave the most comprehensive definition as presented in Table 2.

Table 2
Definitions of Ostracism

Author	Year	Main Theme
Gruter & Masters	1986	Rejection in social connection (Ostracism)
Sommer et al.	2001	Being intentionally ignored and overlooked by a person or entire group (Ostracism)
Williams	2001	Acts by a person or entire group that ignores and reject another a person or entire group (Ostracism)
Hitlan, Cliffton & DeSoto	2006	Overlooked, rejected and excluded that impacts in terms of being stressed, bad relationships and associations at the workplace (Ostracism)
Ferris, Brown, Berry & Lain	2008	Perception of being overlooked or excluded (Ostracism)
Anderson	2009	Being excluded deliberately (Organizational shunning)
Blackhart et al.	2009	Loneliness and refusal of making social connections (Social Exclusion and Rejection)
Dotan-Eliaz, Sommer & Rubin	2009	Exclusion due to communication in a language that rest of people in a group don't comprehend (Language ostracism)
Robinson et al.	2013	The omission of acts that engage another member of the organization when it was socially expected (Workplace ostracism).

Source: Adapted from Robinson et al. (2013)

Distinctive Features of Ostracism

The features that make ostracism a distinct construct from other mistreatments taking place in the organization are its dependency on context (Robinson et al., 2013), its occurrence with or without intention (Williams, 1997) and is the omission of an act (Cortina & Magley, 2009). Other mistreatments such as harassment, bullying, aggression, and undermining are done with purpose, they are the commission of acts and they vary less according to the context.

Theoretical Underpinnings

The most prevalent theories that dominated research in examining the concept of ostracism and workplace ostracism include Conservation of resource theory (COR) (e.g. Haq, 2014; Leung et al., 2011; Sommer & Yoon, 2013; Zhao & Xia, 2017), Social identity theory (SIT) (e.g.Chung, 2017; Gómez et al., 2011; Wu, Yim, Kwan, & Zhang, 2012) Social exchange theory (SET) (e.g., Chung & Kim, 2017; Hitlan & Noel, 2009; Scott et al., 2013; Zhang & Dai, 2015) and rarely used Social capital theory (SCT) (e.g., Bilal, Fatima, & Akoorie, 2017; Keefer & Knack, 2008; Taleny,

2014). SET, SIT, SCT give the social perspective of being ostracized. People in organizations are embedded in social networks (friendship and advice networks) that offer them valuable resources and information known as social capital (Adler & Kwon, 2002). When an individual is ostracized his social image is considered less favorable forming a poor social identity (Tajfel & Turner, 1979) and the quality of reciprocation with other colleagues decline, resulting in reduced social exchanges (West & Turner, 2010) that reduces the level of employees' performance (Chung & Kim, 2017). COR explains the process of ostracism based on valuable emotional and organizational resources possessed by employees at the job (Wright & Hobfoll, 2004) that are depleted by being ostracized and consequently decline performance (De Clercq et al., 2019).

Sequential Stage Model of Workplace Ostracism

In light of the theoretical perspective of the above-mentioned paradigms, the sequential process of ostracism was found to comprise of following major steps in the context of the workplace by the integration of available literature.

Exclusion Stage

People identify with specific groups to maintain a distinct and positive identity and they view the members of their groups as more favorable than others. As per SIT, any threat to identity i.e. inclusion of opposite gender, competence, ability, and contribution reduces the commonality among group members (Chung, 2017). In every organization, formal professional networks are established that are known as advice networks (Castilla, 2005). Advice network is the association with other members of the organization who assist, advise, provide information, and guidance on work-related matters that is important for efficient task performance (Sparrowe, Liden, Wayne, & Kraimer, 2001). In contrast, the concept of friendship networks refers to voluntary informal relations in the workplace that offer emotional and social support (Tortoriello & Krackhardt, 2010). The favorable members are included in group interactions of these networks and those viewed unfavorably are treated as out-group and ostracized which results in their exclusion from friendship and advice networks (Venkataramani, Labianca, & Grosser, 2013; Mitteness, DeJordy, Ahuja, & Sudek, 2016).

Disassociation Stage

After being excluded from friendship and advice networks, ostracized individuals are detached from other members of the organization (Venkataramani et al., 2013). The basic assumption in this theoretical perspective is that the behavior of people is dependent on the association and exchange in actors. In SET the physical things like equipment and resources and non-physical things like information, approval, support, trust, and status are exchanged (Dabos & Rousseau, 2004). Ostracized individuals that are sent in out-group have poor social work-related as well as emotional exchanges (Homans, 1958; Blau, 1964; Sparrowe et al., 2001).

Depletion Stage

The concept of social capital states that the network of people shares and provides information and support to members of the group (Burt, 1992) and works collaboratively to attain the goals of individuals and organizations (Fukuyama, 1995)**.** Putnam (2006) asserted that social capital is build up by employing social networks. The people in the organizational networks socialize and interact with each other resulting in trust, cooperation and enhanced motivation to take part in the activates taking place in the group. People in the network share the personal resources, information, influence, and reinforcement that results in better performance (Darmasetiawan et al., 2013). This causes access to the resources that are present in the network and the opportunity to use them (Coleman, 1990). So we argue that when an individual is ostracized the social resources that are obtained from being a part of friendship and advice networks are depleted hereby undermining their social capital.

Repercussion Stage

After resource depletion, the person comes in the repercussion stage in which the consequences of workplace ostracism occur as per COR. The loss and subsequent quest to conserve the resources of resources caused by workplace ostracism makes a person unable to perform effectively (Sommer & Yoon, 2013). Sparrowe et al. (2001) stated that when advice from connecting informally to a group is missing, it causes poor employee performance. Furthermore, it is stated that lack of support from social connections at the workplace and absence of social connection with peers in the organization declines the ability to perform work-related tasks (Gkorezis & Bellou, 2016; Yang & Treadway, 2018). In addition to reduced performance due to lack of resources, a person tries to conserve the remaining resources by withdrawal from engaging in extra-role behaviors (Haq, 2014). The link between being ostracized and lower performance related to work as well as discretionary behaviors have been well established (Robinson et al., 2013). To conclude, the most prominent harmful results of ostracism are lower in-role and extra-role performance (see Table 3).

Table 3

In-Role Performance vs. Extra-Role Performance in Workplace Ostracism

Factors of Difference	In-Role Performance	Extra-Role Performance
Origin	George (1968) From the Concept of Role in Theaters	Organ (1988) Also known as OCB (organizational citizenship behavior) First introduced in the Research between job satisfaction and Performance
Main Features	Related to core Job	Behaviors that are not included in the core job description
Compensation	Rewarded officially	No official reward
Nature	Required by Job	Voluntary
Impact	Direct	In-direct
Relation to Ostracism	Exclusion from formal advice/ friendship network Miss out task-related information Task performance suffers	Exclusion from formal advice/friendship network Miss out non-task related information Contextual performance suffers
Examples	Formal job duties mentioned in Job Description	Developing a better reputation, behaving in a cooperative manner with others, giving suggestions, sharing information and helping others for the betterment of the organization.

Source: Self-Developed from Literature

On the basis of the above synthesis and integration of literature the sequential model of the workplace ostracism is proposed in Figure 3:
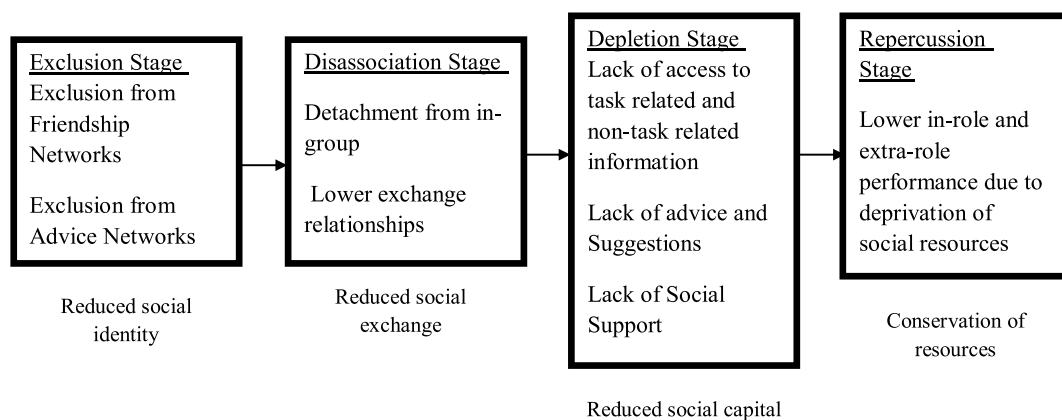
Figure 3: Sequential Stage Model of Workplace Ostracism

Conclusion

The above mentioned literature implies that the process of workplace ostracism occurs in four sequential steps i.e. exclusion stage (exclusion from friendship and advice networks-based on SIT), disassociation stage (detachment from in-group and lower exchange relationship-based on SET), depletion stage (lack of access to task-related and non-task related information, advice and support-based on SCT) and finally repercussion stage (lower in-role and extra-role performance due to depletion of resources-based on COR).

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CORPORATE GOVERNANCE PRACTICES CAN MITIGATE THE INFLUENCE OF CAPITAL STRUCTURE ON FIRM PERFORMANCE: A CROSS-COUNTRY EMPIRICAL STUDY

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Abstract

We examined whether corporate governance practices can mitigate the effect of capital structure on the performance of a firm in the emerging stock markets of Pakistan and India. Good corporate governance practices play a significant role in eliminating risk for investors, appealing capital investment and hence enhance the performance of the firms. The firms need capital resources to maximize the wealth of shareholders through profit. Therefore, there is a need to focus on the factors affecting profitability and capital structure. The sample of the study is comprised of 208 non-financial firms listed at KSE (Pakistan) and BSE (India) from 2006-2015. We used the panel data techniques, pooled OLS and fixed effect to find out the relationship among corporate governance practices, capital structure and profitability. The outcome of this study indicate that corporate governance practices significantly influence the firm capital structure. Further, results confirmed that corporate governance practices have a distinct effect on the speed of capital structure adjustment. It is suggested that the application of corporate governance rules should be mandatory. Political, social and cultural aspects have to be considered in the corporate governance policy framework. This is the first empirical study examining that corporate governance practices can mitigate the influence of capital structure on a firm's performance (in Pakistan & India) by employing most recent cross-country data. This study contributes in literature by highlighting the relationship between the corporate governance and capital structure choice.

Keywords: Corporate Governance, Capital Structure, OLS, Emerging Stock Market, Firm Performance.

JEL Classification: G300

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Introduction

An effective corporate governance system is very important in enhancing the investor confidence regarding corporate investment decisions and improving the financial performance of companies. In the last two decades, there has been a significant debate among researchers regarding corporate governance impact on a firm's performance, and how to establish corporate governance practices because good corporate governance influence stakeholders' decision-making process (Frooman, 1999). In corporate finance, the corporate governance and capital structure are the essential areas of research. Corporate governance signifies the prominent part of corporate finance in risk reduction, attracting capital investment, improving investor confidence and hence increasing the profitability of the firms (Velnampy & Pratheepkanth, 2013). Firms need financial resources and improved profitability to achieve the objective of value maximization. Therefore, it is very important for a firm to know about which factor may influence the capital structure, profitability of firms and corporate investment decisions.

In particular, corporate governance is a mechanism to protect the interests of the all stakeholders. Practices of Corporate governance not only enhance the profitability of firms but also assist in economic development at national level. Those firms which have weaker corporate governance practices, faces additional agency problems and managers get more private benefits because of weak corporate governance (Rais & Saeed, 2005). Chuanrommanee and Swierczek (2007) point out that, the corporate governance practices in the emerging economies like ASEAN are according to the global corporate governance practices. Similarly, in Pakistan, the corporate governance has gained the attention of researhcers after the introduction of Governance Code 2002 by the Securities and Exchange Commission of Pakistan (SECP) for listed firms. In the beginning, there was a lot of criticism and various problems occurred at the time of its enforcement. However, regardless of these criticisms, the corporate governance rules have been a major reason for the start of a new research topic in Pakistan.

Whereas in India, corporate governance initiatives started in 1998 when the Code of Corporate Governance was published as voluntary code and the first monitoring corporate governance framework for listed firm was established by the SEBI. Latter, in February 2000 the Corporate Code was formulated by following the recommendations of the Kumarmangalam Birl.

According to Rais and Saeed (2005), the governance rules have developed the overall firm structure and business environment through transparency and accountability in financial reporting. The global financial crisis draws attention to the importance of good corporate governance practices so that a firm can manage the effects of unexpected crises (fears) that may arise in future business activities. The operating business management decisions regarding assurance of both short and long-term capital, capital structure, maintaining the solvency level are key functions in the formation of competitive gains (Mulili & Wong, 2011).

The importance of capital structure decision is understandable due to its impact on profitability. The fruitful choice of a source of capital is one of the vital components of a firm's financial strategy. Moreover, the debt formation efficiently empowers managers to disburse the forthcoming cash flows. Hence, when firms decide capital financing through debt instead of stock, then firms should have the responsibility to pay the debt cost from the future cash flows. But, due to this increased cost of leverage and as a result, the standard agency costs of debt increase the bankruptcy costs. Thus, the firms should emphasize on the optimal capital structure in such a way that marginal cost of debt is offset by its marginal benefits and resultantly share price is maximized (Jensen, 1986). For that reason, the examination of corporate governance, capital structure relationship gives a wonderful strategic framework on the optimal capital structure decision.

Exiting financial literature, has not fruitfully concentrated on the impact of corporate governance practices on capital structure, so far (Bhagat & Bolton, 2008). The corporate governance is considered as the process of focusing, controlling, and making firms accountable (Australian Standard, 2003). So, it entails that in the process of managing organizations, the corporate governance comprises of accountability, authority, direction, stewardship and control exercises. Further, the corporate governance mechanism controls and protects the rights of all stakeholders (Morin & Jarrell, 2001). The corporate governance is a jointly holistic strategy that should be framed according to the objectives of the firm and the interest of stakeholders.

The researchers find out that corporate governance practices are somehow different from the mandatory issues of firms in Pakistan and India. In this context, our sample consists of 208 non-financial listed firms. Time period for the data analysis is 2006-2015.The reason for choosing this is that it reflects the significance of social and economic conditions that were present during this time. The sample firms have mixed practices in term of audit/remuneration, or nomination committees. Further, in the context, of board size and meeting, these firms have different frequencies of the meeting.

Good corporate governance practices reduce risk for investors, enhance investor confidence about capital investment and improve the firm financial performance. The business organization needs financial resources to meet its objectives related to earning. So, there is a need of exploring factors that may affect the capital structure and financial performance of the firm. Previous literature lacks in this context. There is no consensus, among researchers, on the factors affecting the firm performance. In both developing and developed markets. The objective of this study is to examine the influence of corporate governance practice on capital structure and profitability of firms focusing on emerging stock markets.

The current study examined the following research objectives:

- To examine the association between corporate governance practices and capital structure.

- To examine the association between corporate governance, capital structure and profitability in different industries.

- To examine, that corporate governance can mitigate capital structure impact on profitability in different industries.

The composition of this paper contains the following sections: section II consists of review of literature. Section III consists of methodology of the study. Section IV discusses the outcome of the study that enables value addition through support of this research work and creates coherence with the preceding research. The last section of this study consists of valuable findings and suggestions for investors and stakeholders in Pakistan and India.

Literature Review and Hypothesis Development

In the past two decades, a growing research activity has been observed on the topic of corporate governance due to its importance in enhancing investor confidence regarding corporate investment decisions and improving the financial performance of companies. To achieve corporate objective, firms need financial resources, thus, firms should consider carefully that affect the capital structure and financial performance.

Generally, corporate governance practices have a significant association with economic growth of any country, since good corporate governance practice moderate risks for investors, and attracts capital investment to enhance the financial performance of firms (Spanos, 2005).

Effective corporate governance helps in economic growth of any economy. In the last two decades, the research intensity in the corporate governance area has been increased. Those firms which have a weaker corporate governance system face further agency problems and these firm's managers get other private benefits (Core et al., 1999). As said by Chuanrommanee and Swierczek (2007), the corporate governance in ASEAN financial firms are consistent with the international practices. The research on the corporate governance subject becomes very important in emerging stock markets for listed companies, such as, Pakistan and India. After the corporate governance code was published in 2002 by SECP in Pakistan. The major corporate governance initiated with the first voluntary code of corporate governance in 1998. Finally, the Naresh Chandra Committee report of 2002 was revised Clause 49 and implemented by SECI in India.

At the start, the implementation of code was very difficult and faced a lot of criticism. However, eventually the Corporate Governance Code has been implemented successfully and this is a major motive for the start of a new research filed in Pakistan. Ahmed and Wang (2012), examining the data of non-financial firms listed on the KSE, Pakistan from 2004 to 2008, find that board size, outside directors, and ownership concentration are positively associated with capital structure, while director

remuneration managerial ownership have negative association with capital structure. Moreover, they found, the control variables such as profitability and liquidity have negative and firm size has a positive association with capital structure.

According to the agency theory, the scholars found that when an outsider manages than agency cost is greater; and this cost inversely fluctuates with the manager's ownership share. However, agency costs increase when the number of non-managerial shareholders' increases. Moreover, the external bank monitoring creates a positive influence externally in the form of lower agency costs. On the other hand, the Stewardship theory is called a stakeholder theory, which put forward that CEOs and board of directors of a firm performing as Stewards, and to do best for the benefit of the firm instead for own interests (Mulini & Wong, 2011).

In the existing literature of corporate governance, characteristics such as board size, board independence, the frequency of board meetings and audit committee reveal that the corporate governance supports public policy that stimulates firms to assign responsibilities among the external and internal members of the board. In the theoretical context, there are some beliefs about capital structure. In this context, generally Barges (1963) point out; the debt is a cheaper capital source of finance as compared to equity. The implication viewed of M & M theory (1958); where they distinguished, the financial instruments issued by the firm have no impact on productivity and value of the firm. However, the trade off- theory indicated that financing assets from debt increases the tax benefits because interest payments are tax deductible. Though, the proportion of debt increase equally the possibility of default, therefore, the expected bankruptcy cost increased (Olayinka, 2011). Further, in relation to the theory, the firm prefers internal source of finance for their investment such as, cash flows (Myers & Majluf, 1984).

According to the signalling effect theory (Ross, 1977), the investors have a higher level of confidence, the debt will entail higher quality and expected cash flows. In addition, there is no common theory of debt-equity choice, however, there are few conditional theories, and each expedites to comprehend the financial structure and choices of the firm (Olayinka, 2011).

The board members are accountable for overall performance and play an important role in financing decision. Similarly, Rehman et al. (2010) point out that capital structure is associated with corporate governance.

Pfeffer and Salancick (2003) pointed out, the presence of non-executive members' moderates' reservations about the firm and support in borrowing of capital. Similarly, Berger et al. (1997) found, those firms having additional external directors, relatively keeping high leverage levels. In the same way, Salim and Yadav (2012) also observed the negative association between capital structure and performance in Malaysian firms but Saeedi and Mahmoodi (2011) found positive relation in Iran. Likewise, Wen et al. (2002) determined a negative (significant) association between the external

directors of the board and leverage of the firm, because the existence of external board members leads to low level of leverage.

In Pakistan, Javed et al. (2014) found direct impact of capital structure and governance on firm value. In India, Kumar (2006) found the same result. The findings indicate that those firms having weaker corporate governance mechanisms, relatively having higher leverage. Further, Kumar point out those firms having greater foreign ownership (low institutional ownership) tends to have low leverage. Moreover, Abor (2007) analyzed the governance influence on the capital structure decision of SMEs. He establishes a negative association between board size and capital structure, while a positive association of board composition, board skills, CEO duality and capital structure. These results advocate that SMEs follow low leverage policy with larger board size. There is a notion that large board size can enhance the value of firms due to a range of board member skill for better decisions and harder for an authoritative CEO to dominate. However, some researchers supported the small board size because larger boards are less effective (Jensen, 1993). When a board size increase than it is hard to harmonize, while the small size of the board, possibility reduces free riding, and upsurge the responsibility of individual directors. Therefore, board size may have positive as well as negative impact on firm value.

There is a general assumption that the board composition has a significant impact on a firm's performance. However, there are mixed empirical evidence regarding associations between board structure and firm performance, and few studies discovered the positive association between board composition and firm performance. Weir and Laing (2001) state that, "higher numbers of non-executive directors have a greater return on equity". Similarly, Ezzamel and Watson (1993) examined that non-executive on the board had a positive association with firm profitability.

Brown and Caylor (2006) find out, firms with larger board size generate high ROE. According to Jackling and Johl (2009) point of view, the larger board size impacts performance positively. In the same way, Baysinger and Butler (1985) find out that outside directors performed well as compared to other firms. Although, Rosenstein and Wyatt (1990) stated that increase in outside director leads to increase in stock return. While conducting a study on the US firms by Agrawal and Knoeber (1996) point out, there is an adverse association between performance of firms and proportion of external directors in board size.

There is an assumption that independent director energetic participation can help in better functioning of the board within the organization (Roberts et al., 2005). In support of the above assumption, Chan and Li (2008) point out the value of the firm is increased through the existence of expert-independent directors. Moreover, Jackling and Johl (2009) find out, a large number of outsider board member positively influences the firm performance. Kang and Zardkoohi (2005) concluded about relationship between CEO duality and performance that if such duality exists as a reward, it enhances the firm performance.

Uzun et al. (2004) found that the chances of fraud reduced due to higher audit committee independence and also audit committee diminishes the agency cost and enhance financial performance. Likewise, Brown and Caylor (2006) investigated a positive association between firm return and audit committees' autonomy. Although, Chan and Li (2008) described that the value of the firm boosted through independent directors in audit committee.

According to Lipton and Lorsch (1992) point of view, the better performance of firms is a result of the frequent meetings of the board. A constructive relationship exists between frequency of board meetings and financial performance of companies (Brown & Caylor, 2006).

Yasser et al. (2011) confirmed that the corporate governance has negative influence on debt ratio and positive influence on return on assets. Corporate managers and boards of directors, may possibly ensure corporate transparency (Jensen & Meckling, 1976) however, the agency theory point out that the external investor pressures motivate managers to maximize the firm value (Allen, Bernardo, & Welch, 2001).

The following hypotheses are operationalized in relation to existing literature for analyzing the association between corporate governance practices, the capital structure and financial performance of Pakistani and Indian listed firms:

H_1: Corporate governance positively affects the firm profitability.
H_2: Corporate governance has a significant impact on capital structure.
H_3: Corporate governance significantly mitigates the impact of the capital structure on profitability.

Data and Methodology

In the existing literature, the board composition (ratio of non-executive directors), board size, and board committees are the key dimensions of corporate governance (Bhagat & Bolton, 2008), among others. Similarly, the debt ratio is considered as a key ratio to define the capital structure within the organization (Bhagat & Bolton, 2008). Profitability is measured by return on assets (ROA) and share return (RT). Table 1 describes the measurements of the variables that are employed in this study.

Table 1
Measurement of the variables

Variables	Measures
Board Size (BODSIZE)	The total number of members in board
Board Composition (BCP)	Number of outside directors in board divided by the total directors
Board committees (BC)	This is measured as, two or more committees have been represented as 1; otherwise 0
The frequency of the board meeting [FOBM]	This proxy is measured as, the number of board meetings in a year.
CEO Duality[CD]	The dummy variable; 1 if CEO chair of the board, 0 otherwise
Ownership Concentration(OC)	This proxy is measured as, Top 15 Share / Total Share.
Diversification[SEGDIV]	Dummy; 1 if a firm deals in multiple segments, 0 otherwise.
Capital structure (LEV)	Leverage ratio = total debt / (total debt + equity)
Profitability (ROA)	Return on assets measured as (NI/net total assets)
Share return (Rt)	Return of share measured by (Pt-Pt-1/Pt-1)
Firm size (SIZE)	Log of total assets
Firm age (AGE)	Age is measured as number of years the firm is operating

The secondary data of 208 non-financial firms have been extracted between 2006-2015 from Data Stream and the annual reports of firms in Pakistan and Indian stock exchanges. The quantitative pooled OLS analysis with fixed effects is employed to observe the impact of corporate governance on the capital structure and firm performance. Corporate governance practices dimensions such as, board size, board composition, the number of board committees and the frequency of board meetings are used in this study. Following econometric model is proposed

$ROA_{it} = \beta o + \beta 1\ FOBM_{it} + \beta 2\ BCP_{it} + \beta 3 BC_{it} + \beta 4 BODSIZE_{it} + \beta 5 LEV_{it} + \beta 6 RT_{it} + \beta 7 CD_{it} + \beta 8 OC_{it} + \beta 9 AGE_{+it}\varepsilon i$ ……………………………………………………………………………….. (1)

$Rt_{it} = \beta o + \beta 1\ FOBM_{it} + \beta 2\ BCP_{it} + \beta 3\ BC_{it} + \beta 4 BODSIZE_{it} + \beta 5 LEV_{it} + \beta 6 ROA_{it} + \beta 7 CD_{it} + \beta 8 OC_{it} + \beta 9 AGE + _{it}\varepsilon i$ …………..………………………………………………………………… (2)

$LEV_{it} = \beta o + \beta 1 FOBM_{it} + \beta 2 BCP_{it} + \beta 3 BC_{it} + \beta 4 BODSIZE_{it} + \beta 5 ROA_{it} + \beta 6 RT_{it} + \beta 7 CD_{it} + \beta 8 OC_{it} + \beta 9 AGE_{+} + _{it}\varepsilon i$ …...………………………………………………………...……….... (3)

Further, this model can be modified to analyse the interaction impact of corporate governance and capital structure and firm performance.

$$ROA_{it} = \beta o + \beta 1\ FOBM_{it} + \beta 2 BCP_{it} + \beta 3 BC_{it} + \beta 4 BODSIZE_{it} + \beta 5 SIZE_{it} + \beta 6 RT_{it} + \beta 7 OC_{it} + \beta 8 CD_{it} + \beta 9 LEV_{it} * BODSIZE_{it} + \beta 10 AGE_{it} + {}_{it}\varepsilon i \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (4)$$

$$Rt_{it} = \beta o + \beta 1\ FOBM_{it} + \beta 2\ BCP_{it} + \beta 3\ BC_{it} + \beta 4 BODSIZE_{it} + \beta 5 SIZE_{it} + \beta 6 ROA_{it} + \beta 7 OC_{it} + \beta 8 CD_{it} + \beta 9 LEV_{it} * BODSIZE_{it} + \beta 10 AGE_{it} + {}_{it}\varepsilon i \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (5)$$

Where: βo = Intercept; $\beta 1, 2,,,,,$ N = Population slope; Rt_{it}= share return of firm i in time t LEV_{it} = Debt Ratio of firm i in time t; BCP_{it} = Board composition of firm i in time t; BC = Board committees of firm i in time t; $BODSIZE_{it}$ = Board Size of firm i in time t; $FOBM_{it}$ = Frequencey of Board meeting of firm i in time t; OC_{it} = Ownership Concentration of firm i in time t; CD_{it} = CEO duality of firm i in time t; Age= Age of firm i in time t; $SIZE_{it}$ = Size of firm i in time t; ROA_{it}= Return on Assets of firm i in time t; RT_{it}= Share return of firm i in time t; and ε_{it} = error term.

Result and Discussion

While examining the possible differences between the Pakistani and Indian firms, capital structure and governance elements of the firms are compared. The descriptive results such as, means, medians and standard deviation are presented in the table 2. According to the results, corporate governance characteristics are on average higher in Indian firms in contrast to Pakistani firms. Larger firms are more leveraged and profitable as compared to small size firms in both Pakistan and India. The results also indicate that the capital structure as the debt maintained by non-financial firms is, on average, 37.9% for Pakistan and 41.9% for India respectively.

Table 2
Descriptive Statistics of the study

Measurement	Pakistan			Indian		
Overall	Mean	Median	St. Deviation	Mean	Median	St. Deviation
BODSIZE	7.8924	6.7340	1.6980	9.4546	6.6485	1.9340
BCP	2.9375	2.2350	1.9502	3.1901	2.6049	0.8743
BC	1.5618	0.9038	0.9018	2.8279	1.6256	0.5970
FOBM	1.3809	0.9802	1.0378	2.4328	1.3750	1.4510
CD	0.3029	0.2189	1.4782	0.4384	0.3649	0.8157
OC	0.5648	0.4913	0.9485	0.6740	0.6048	0.3719
LEV	0.3984	0.2817	0.8963	0.5019	0.4382	1.6354
ROA	0.0895	0.0670	0.5849	0.0985	0.0864	0.5831
RT	0.0685	0.0394	1.090	0.1182	0.7984	1.4980
SIZE	12.9463	9.1470	1.0945	16.9841	12.8760	1.5329

Table 3 shows the correlation results of individual relationship between the variables. All the variables except ownership concentration are associated with the capital structure. The results validate the association between corporate governance and capital structure. Although the mixed association (both positive and negative) were found to all variables. Correlation values indicate that board size and ROA are negatively associated. It is consistent with previous studies related to emerging stock markets.

Table 3
Correlation between Corporate governance, Capital structure and Performance

Variables	BODSIZE	BCP	BC	FOBM	CD	OC
PAKISTAN						
LEV	0.0546**	0.2034**	0.3983*	0.1851*	0.0687**	-0.0970
ROA	-0.1358*	0.1496*	-0.0109	0.0187*	-0.1972*	-0.3157
RT	0.1948*	-0.1094*	-0.1847	0.1546*	0.1826*	0.2936
INDIA						
LEV	0.1439*	0.3059	0.4602**	0.348**	0.2078*	-0.2694
ROA	-0.2093**	0.3629*	0.0948*	0.2684*	0.1948*	-0.1690
RT	0.3064**	0.2842**	0.1738**	0.3489*	-0.1904*	0.1502

Note: **= Significant at 1%, and * significant at 5 %

The pooled OLS, Fixed Effect and Random Effect regression models has been applied in to find out the impact of corporate governance on profitability (ROA), return (Rt) and capital structure, separately for Indian and Pakistani dataset. The results of pooled OLS models are provided in table 4, 5 and 6. The corporate governance dimension, Board size, FOBM, Board Composition contributes significantly to ROA, while Board committee, CEO duality, and OC factors are not contributing significantly to ROA. Moreover, leverage and firm diversification also significantly contributes to ROA. While in case of share return as dependent variable, only board committee, board committee, board size, board composition, and ownership concentration significantly associated with share return.

Table 4

Pooled OLS and Fixed Effect Results: Firm Performance (ROA)

	Pakistan		India	
Variables	**OLS**	**FE**	**OLS**	**FE**
Constant	0.1249	0.1409	-0.2596*	-0.3048**
BODSIZE	0.1438**	0.1876*	0.1638	0.1479*
FOBM	0.0298*	0.0358*	0.08648	0.06974*
BCP	0.1385	-0.1974*	0. 2048*	0.2019*
BC	0.0087	0.0093	0.0109	0.0206
CD	0.1638	0.1492	0.1940	0.2038
OC	0.1047	0.1693	0.1876	0.1974
LEV	-0.1786*	-0.1864*	-0.2908*	-0.1796*
RT	0.1058*	-0.0974*	0.1578*	-0.1629*
DIV	0.0167*	0.0085*	0.0196*	0.0179*
SIZE	0.0826*	0.0924	0.0494	0.0618*
AGE	0.0674	0.0906*	0.1098	0.1040
R-Square	0.5150	0.5341	0.5068	0.5395
F-value	1.459*	1.538*	1.639*	2.210*

Note: **= Significant at 1%, and * significant at 5 %

However, few corporate governance practices dimension contributes significantly to leverage. The significant results indicate a positive association of board size with return on assets. It means that bigger board size is better, because constituted with members from different knowledge, diversified expertise and skills facilitate better decision making and play a good role to monitor the activities of the firm. Although a there are few studies which describe negative relationship between board size and profitability, the results of current studies are consistent with some other studies (Eisenhardt & Yawson, 2006) pointing out that larger board size may have positive impact of profitability of firms especially

in the developing countries where members of board of directors usually have social networking with the other stake holders including bankers, auditors, regulators and investors. Therefore, a firm with large and diverse board may earn higher profits due to social capital of directors. According to Yawson (2006), in the firms with larger board size, access to external factors is better, risk is reduced and critical resources are easily accessible.

Table 5
Pooled OLS and Fixed Effect Results: firm performance (Share return)

Variables	Pakistan		India	
	OLS	FE	OLS	FE
Constant	-1.0649*	-1.3678*	-1.3589*	0.7348
BODSIZE	0.1683*	0.1940*	0.2198*	0.2085*
FOBM	0.0568	0.0903**	0.1842*	0.1099*
BCP	0.0283	0.0547*	0.0902	0.0629*
BC	0.1756**	0.2083	0. 2382*	0.1940**
CD	0.2048	0.1864*	0.2831	0.2068
OC	0.1643*	0.1028**	0.2058*	0.2438
LEV	-0.1680*	-0.1239*	-0.1842*	-0.2364*
ROA	0.1089**	0.2785*	0.1942**	0.2076**
SIZE	0.0694	0.0428**	0.0984**	0.1018**
DIV	0.0104	0.0198*	0.0146**	0.0138*
AGE	0.0128*	0.0190	0.1048**	0.1260*
R-Square	0.5430	0.5106	0.4938	0.5283
F-value	2.849*	2.698*	2.760*	3.421*

Note: **= Significant at 1%, and * significant at 5 %

Further, we documented that board size and board compositions have a strong influence on capital structure among non-financial listed firms in Pakistan and India. The industry dummy and time dummy are also used in this analysis. The results of time effects show that the variation in firm performance is different across the firm and over the time period. We also documented that the CEO duality insignificantly contributes to firm performance, but contribute significantly to the capital structure of the firm in Pakistan and India.

Table 6

Pooled OLS and Fixed Effect Results of leverage

Variables	Pakistan		India	
	OLS	FE	OLS	FE
Constant	-1.1394*	-1.3680*	-2.3347	0.4178*
BODSIZE	0.1275**	-0.3248	0.4834	0.3542
FOBM	0.0341*	0.2483	-0.5808	-0.3140
BCP	0.1749*	-0.5745*	0.4248*	0.4294*
BC	0.0098	0.0142	0.0748*	0.0648
CD	0.1259	-0.1875*	-0.268*	-0.3694*
OC	-0.0158	-0.0241	-0.0349	-0.0485*
ROA	-0.348*	0.3745*	-0.2468	-0.2594*
RT	-0.1426*	-0.0285*	-0.1389*	-0.5249*
DIV	-0.1446	-0.1462	-0.0151	-0.0141
SIZE	0.2342	-0.134*	0.2941*	-0.1948*
AGE	0.0341*	0.0266	0.1242	0.1169
R-Square	0.4805	0.4976	0.5374	0.5039
F-value	0.506	1.530*	1.519*	2.016*

Note: **= Significant at 1%, and * significant at 5 %

The results of all OLS models for firm performance are summarized in the above table. Overall findings indicate that the corporate Governance Practices contributes significantly to firm performance (both measures) and capital Structure.

Further, it has been analysed that does corporate governance mitigates the adverse impact of capital structure on firm performance. For this purpose, we used the interaction term between corporate governance and capital structure (BODSIZE*LEV and FOBM*LEV), and the results of pooled OS models are provided in table 7.

Table 7
Pooled OLS Results of firm performance (ROA & RT)

	Pakistan		India	
Variables	**ROA**	**RT**	**ROA**	**RT**
Constant	0.1868	-0.1085	-2.3849	-1.5032
BODSIZE	0.2035**	0.1958**	0.3482	0.2085*
FOBM	0.0819	0.1854*	-0.2069	0.2638*
BCP	0.0984*	0.1079*	0.3049*	0.2664*
BC	-0.2848*	-0.2451*	-0.1874*	-0.2630*
CD	0.1014*	0.1329*	0.2958	0.2864*
OC	0.1869**	0.1374	0.0176	0.0196**
DIV	0.0139	0.0104**	-0.0184	0.0120
BODSIZE*LEV	-0.0960*	-0.0846*	-0.0285**	-0.0340**
FOBM*LEV	0.1438	0.1098	0.1942	0.1784
SIZE	0.0998*	0.1009*	0.1680	0.1090**
AGE	0.1049**	0.0908	0.0908*	0.1340**
R-Square	0.5609	0.5218	0.4840	0.5809
F-value	1.849*	2.736*	1.958*	2.469*

Note: **= Significant at 1%, and * significant at 5 %

In table 7 results indicate that the interaction term BODSIZE*LEV and FOBM*LEV has positive and significant impact on profitability and share return as firm performance measures. It means that the adverse effect of higher leverage on performance of the firm is dampened and through good corporate governance practices of board structure and audit committees, because these are considered as protection tools for shareholders. Overall, we can conclude that corporate governance practice can reduce the negative impact of capital structure on performance. Further, the results reveal that, the composition of executive and non-executive directors in a board make sure that the optimal level of debt ratio is maintained in capital financing decision. In previous studies such as Belkhir (2009), Masulis et al. (2012) etc., similar results were found. With regard to above findings, it is concluded that, the influence of capital structure has been moderate by the best corporate governance practices.

Conclusion

This study is an attempt to validate that transparency and overall firm performance is enhanced through the implementation of good corporate governance practices. Moreover, it also enhances transparency and protects the interest of the shareholders through managers. The objective of the study is to examine that the corporate governance can mitigate the impact of the capital structure on the performance of non-financial firms in Pakistan and India. The capital financing decision is one of the major issues that managers have to face. The corporate governance is a major factor that affects the investment and financing decision. Moreover, the corporate governance significantly assists firms by imparting good management practices, operational control and accounting systems. Rigorous and operational regulatory mechanism and efficient utilization of capital resources result in improved performance.

Overall, results indicate that corporate governance practices are significantly associated with the capital financing choices. The Board composition and number of committees contribute to mitigate the significant influence of capital structure on firm performance, and results are consistent with Belkhir (2009), Masulis et al. (2012), etc. However, ownership concentration does not contribute significantly to the capital structure decisions. These findings are consistent with the existing literature. The larger board size and its composition ensure lower debt ratio, because the larger corporate board and good composition put a strong pressure to make managers pursue a lower debt ratio (Belkhir, 2009). These outcomes have important implications for policy makers, researchers and corporate boards, particularly.

Corporate governance should focus on board members, because it is positively associated with future operating performance. Although, the researchers have acknowledged the transformations between practices and mandatory corporate governance issues in the listed firms in both emerging and developed stock markets, corporate governance regulations should be rigorously directed by the SECs of Pakistan and India. Furthermore, the political, economic and social & cultural characteristics of Pakistan and India should be reflected in the corporate governance policy framework. According to our judgment, the narrow role of independent boards and committees be enhanced, the identical requirements for increasing composition of non-executive directors be implemented to improve governance and monitoring effectiveness of firms. Hence, there is a need to establish a corporate governance model that considers the conditions of both emerging stock markets.

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DOES PAKISTANI INVESTOR EXHIBIT HERDING BEHAVIOR DURING FINANCIAL CRISIS?

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Abstract

This paper investigates the presence of the time-varying herding behavior and its existence under both normal and crisis situation at the Pakistan stock market. For this purpose, this study utilizes the return dispersion models based on the aggregate market returns. Unlike previous research, this study not only confirms the existence of herding but also observe time variation in this behavior. This time variation in herding behavior was examined by applying Kalman filter estimation to the return dispersion model. Furthermore, all three domestic crisis amplified herd intensity. However, of the two major international crisis, only global financial crisis significantly affect the behavior of Pakistani investor. Evidence suggests that tests for herding behavior should consider its dynamic nature. Crisis in domestic and global markets play a significant role in modeling the structure of the dynamic behavior of Pakistani investors.

Keywords: Stock Return Dispersion, Herding Behavior, Kalman Filter, Financial Crisis.

JEL Classification: G010

Introduction

Herding behavior in financial markets is an abstract phenomenon in which investors imitate the action, feelings, and thoughts of others and ignore their personal belief intentionally. The market agent is defined as an individual who bases his decisions on the actions of others rather than on the fundamental information (De Bondt, 1998). Nofsinger and Sias (1999) state herding as "a group of investors trading in the same direction over a period of time".

The standard view of finance is constructed on the paradigm of the efficient market hypothesis

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(EMH). The investors are rational economic agents according to the standard view and irrationality in asset prices is caused by the exploitation of arbitragers. Behavioral finance view assigns irrationality of agents to restrained cognitive power and emotions. Barberis and Thaler (2003) state that the arbitrage opportunity available to the irrational investor cannot be manipulated in a simple manner if limits to arbitrage exist. The traditional finance view fails to explain certain anomalies, which can only be answered through behavioral finance view. As a consequence of several financial crises, and the failure of traditional models to explain the underlying behavioral factors raised the importance of behavioral finance. One of the behavioral anomaly is herding behavior and is often linked to the volatility of equity returns and can be easily observed in extreme returns and fragile financial environment (Christie & Huang, 1995).

Bikhchandani and Sharma (2001) describe herding as a state in which investors follows the market consensus by keeping aside their own set of information. Chiang and Zheng (2010) suggest this behavior as rational if in order to avoid the cost of obtaining information and knowledge individual follow the step of successors in the market. Aggarwal (2014) discusses several reasons for this behavioral dispersion from rational decision making. One of them is the role of Psychological biases that is specifically linked to the heuristics and framing effects and particularly based on the notion of irrationality.

The existence of this behavior is important from two aspects. First is the implication of asset pricing mechanism, it is believed that herd formation is an outcome of irrational response instead of the rational decision based on market fundamentals. In the presence of herding, prices are driven away from their equilibrium value, causing instability and often creates bubbles that result in sudden fall of prices (DeMarzo, Kaniel, & Kremer, 2007).

Second, is the episodes of reappearing financial crisis that raised several questions against market efficiency and asset pricing models and provides concern about the sensitivity of asset prices to market sentiments. According to the rational asset pricing model, during the period of market stress, substantial changes in market returns reflected in augmented dispersion (Christie and Huang, 1995). The aggregation of information can be viewed through the lens of herding behavior where information may (or may not) be incorporated in security prices. This information will only generate trading and will be higher when returns are higher (Welch, 2000).

The stock market in Pakistan is highly sensitive to unanticipated shocks and news (Malik & Shah, 2017). These shocks are rapidly reflected in the market activities but surprisingly markets recover easily soon after these turbulences. The major reasons behind this inefficient market behavior are poor administrative laws and the governance of weak institutional structures (Shah & Khan, 2016). Pakistani stock market has a characteristic of intensified participation of concentrated corporate ownership. Their perceptions, actions, and behavior have a continuous impact on stock market functioning and asset pricing mechanism (Hussain & Shah, 2015). Fan and Wong (2002) states that

in the presence of concentrated ownership, the reliability of reported earnings and information content shrink for the outside investors. These impacts cannot be solely explained through the traditional models of finance as these behavioral traits dominate the overall stock market activity. In the presence of such an environment, it is deemed necessary to study the herding behavior of Pakistani investor.

The phenomenon of herding behavior in Pakistan stock market has important implication for understanding the stock market functioning from investment as well as regulatory perspective. Trading in the similar direction can result in price fluctuation, increases volatility and can destabilize the market leading to price bubbles and crisis situations (Demirer & Kutan, 2006). Moreover, this correlated behavior in the market increases co-movement in asset returns. The emerging markets exhibit more herding tendency (Voronkova & Bohl, 2005) comparative to developed markets (Wermer, 1999). Most investors are unable to interpret given information set and follow the footsteps of large investors due to lack of adequate trading information.

The primary attempt of this study is to test the presence of herding behavior in Pakistani stock market. To meet this objective, this study focus on the aggregate market data and used the return dispersion model. All three models based on the cross- sectional dispersion of asset returns are employed (Christie & Huang, 1995; Chang, Cheng & Khorana, 2000; & Chiang & Zheng, 2010). Specifically, this research adds the literature by investigating the time-varying nature of Herding behavior using Kalman-filter-based model and the effect of certain domestic and global financial crisis. Previous studies examine herding behavior using a constant coefficient model that reflects the mean value of the functional relationship that remains unchanged over the entire sample. During the unstable period market faces certain structural transformations and these models fail to capture the market dynamics (Yang & Chen, 2015). The presence of time-varying herding exhibit a significant correlation with equity returns and is coherent with the hypothesis of positive-feedback trading (Chiang, Tan, Li, & Nelling, 2013).

The usefulness of this study is twofold. At first, this study analyzes the herding tendency of investor under country-specific characteristics that cause turbulence in the market. Secondly, it highlights the disturbance of global market environment that trigger this herding tendency in Pakistani market. In literature, the influence of the domestic and global crisis on herding behavior of Pakistani investor is novel, none of the previous studies reflected the intensity and magnitude of this crisis simultaneously. The primary concern of this paper is to consider the time-varying behavioral tendency of investors at the Karachi Stock Exchange under both normal and crisis condition. The Karachi Stock exchange is the oldest and largest Pakistani stock exchange based on stock market capitalization.

The remaining paper is structured as follows, section 2 offers an insight into the theoretical and empirical evidence on herding formation. Section 3 illustrates the data and methodology, section 4 provides empirical evidence of herding identified by different model and different market situations. Lastly, section 5 provides concluding remarks and future implications.

Literature Review

This study provides a brief understanding of the theoretical and empirical literature of investor herding behavior in financial markets. In the first subsection theoretical development on the idea of herding is discussed. The second section describes the empirical research and theoretical framework.

Theoretical Research on herding behavior

Theoretical research describes herding pattern in three distinct ways. First is the behavioral aspect of herding which is linked to the contagion of sentiment[4]. Goldbaum (2008) linked herding to the psychology of investor and argued that investors obtain a sense of security by mimicking the action of the majority. Lux (1995) argues that investors are least informed of market information. Therefore, they base their decisions solely on observation. The market is driven by optimistic traders and dominated by winners, and the pessimistic ones follow the actions of optimistic others.

The Second strand considers herding as an information cascade where investors lack information and based their decision on others judgment with an assumption that they are better informed and make informational payoffs, they make an informational cascade[5]. Information revealed by the act of well-informed investors is valuable for the least informed investors as the process of information collection can be costly and time-consuming. Such investors solely rely on past information set and the whole process ends up into herd formation (Avery & Zemsky, 1998). Cipriani and Guarino (2014) empirically construct a model to test Informational herding and tested this theoretical model thorough financial data.

The third strand of research focused on herd formation caused by the reputational concern of manager that results in a principal-agent problem. The evaluation of a manager's performance is based on the relative performance to overall industry and poor performance leads to the dismissal of top management (Morck, Shleifer, & Vishny, 1989). Therefore, a reputational concern manager completely follows other's evaluation and forecast and shows their competence as an efficient agent by mimicking the action of the best performers. (Scharfstein & Stein, 1990; & Graham, 1999).

Theoretically, herding is classified as spurious and intentional herding (Bikhchandani & Sharma, 2000). Later form of herding is usually fundamental driven and often become a necessity rather than a choice where investors are forced to herd due to certain economic scenario (Spyrou, 2013). However, Intentional herding is where investors copy the behavior of others intentionally

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[4] Asch (1952) studied the decision behavior of an individual in a social environment and conclude that investors in a group ignore given information set and their decision is a reflection of coordinating actions.

[5] Banerjee 1992; Welch, 2000; Bikhchandani, Hirshleifer, and Welch 1992.

and suggest that investor can be rational or irrational agents[6]. An investor can be irrational when the reason behind imitation is psychological reasons. Whereas, herding can be rational when investor lack confidence in his own judgment or he find him unable to process available information (Devenow & Welch, 1996). This paper makes an effort to examine irrational herding in the financial market of Pakistan.

Empirical research and Theoretical Framework

Empirical literature classifies herding estimation in two major categories based on investor type (Spyrou, 2013), the former grounded on the information cascade model and deals with the herding of specific investor class namely, institutional investors. Lakonishok, Shleifer and Vishny (1992) first proposed this measure and then Sias (2004) further enhanced it.

The latter set deals with the market activity data and relies on the aggregate prices to identify herding with respect to the market consensus. Christie and Huang (1995), Chang et al. (2000) and Hwang and Salmon (2004) proposes different measures to identify this type of herding activity in the market.

This paper identifies herding based on market activity data which has its theoretical foundation on behavioral aspects of herding. For this purpose, this study utilizes the return dispersion models[7]. The Rational asset pricing models states that return dispersion should increase during extreme market stress as investor's trade further away from the average market portfolio. But, in the presence of herding, this return dispersion decreases as investors track the market direction (Christie and Huang, 1995).

Christie and Huang (1995) indicate no herding in the US market as the dispersion increases instead of decreasing during market stress. Gleason, Mathur, and Peterson (2004) employ this method and observe the absence of herding during extreme market movements on the stocks traded on AMEX. Chiang et al. (2000) observe nonlinear relationship between overall market returns and cross sectional dispersion of individual returns from the market in the presence of herding. Out of the five markets under consideration only emerging markets of Taiwan and Korean markets exhibit strong herding behavior, Japanese market display partial evidence and herding were absent in the developed market of US, and Hong Kong. Similarly, Cajueiro and Tabak (2009) observe herding in the Japanese market during extreme price movements. Tan, Chiang, Mason, and Nelling (2008) observe strong evidence of herding in both A and B stocks listed on the Chinese market under asymmetric market conditions. Similarly, Chiang and Zheng (2010) notice herding only in a falling market by investigating both A and B stocks. Demirer, Kutan, and Chen (2010) examines herding especially during a market downturn in

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[6] According to Devenow & Welch (1996) theoretically herding may be seen as completely irrational (investors blindly follow the action of each other by ignoring rational analysis), a rational point of view (optimal decision making is an outcome of information asymmetry and herding is a result of payoff externalities), or a near-rational view (where investors can adopt heuristic rules). Recent insight into literature can be seen in Spyrou (2013).

[7] See Christie and Huang (1995), Chang et al (2000) and Chiang and Zheng (2010)

the Taiwanese stock market, both sector wise and in the overall market. Hsieh, Yang, and Lee (2011) employ return dispersion model in 12 Asian stock markets and report a significant herding behavior.

In contrast, Henker and Mitsios (2006) employed dispersion models and find no support of herding using low frequency data in the Australian equity market. Garg and Gulati (2013) using the same model observe similar results in Indian stock market under normal market conditions. Similarly, Javaira and Hassan (2015) identify herding behavior in the Pakistani stock market using both models and report significant herding only in a crisis situation. Both models assume that herding is intense during extreme market movements and under market stress. Therefore, this study can hypothesize that

H_1:   During extreme market stress stock prices exhibit significant herding behavior towards market returns.

H_2:   In the presence of Herding a significant negative and nonlinear relationship exists between aggregate market returns and their cross cross-sectional dispersion.

The major contribution of this study is motivated by large literature that describes the movement of stock returns as time-varying (Sharma, Narayan, & Thuraisamy, 2015). If the moments in asset returns are time-varying, then the determination of herding behavior based on market returns and their dispersion should also be time-varying. More recently, Chiang et al., (2013) contributed to literature by examining a time-varying nature of return dispersion through a Kalman filter based model and estimated time varying herding in the Pacific- Basin and the US markets. The study finds significant herding behavior except for the US market. Yang and Chen (2015) examine time-varying herding behavior in Greater China stock markets during the global financial crisis period and find that stock market of China and Taiwan exhibit higher herding tendency during the turbulent period and also exhibit a greater response to the US market factor. This research is limited to a specific segment of economies and emerging market like Pakistan is completely ignored. According to literature, the Pakistani market exhibit higher volatility and highly sensitive to the news (Shah & Khan, 2016). Application of this dynamic model in Pakistani market can provide useful insight. Therefore, we can hypothesize that:

H_3: Herding behavior in Pakistani market is time-varying.

The financial crisis and herding behavior are closely linked, this motivation was derived from several studies[8]. An increase in market uncertainty leads to form a market consensus. During the crisis period, the connection among investor's increases due to pervasive speculation and investors recognize the shock of the crisis (Bikhchandani & Sharma, 2000). In the globalized world, such frictions in financial markets are not restricted to the national markets but have transmission effect around the globe. The trading activities of investors across the borders are in a synchronized manner

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[8] See, Christie and Huang (1995); Bowe and Domuta (2004); Chiang and Zheng (2010)

or the presence of herding in a country upsurge the contagious crisis in other economies (Borensztein & Gelos, 2003).

Numerous studies investigate the idea that foreign investor plays a voluminous role in destabilizing national markets through herd formation (Choe et al., 1999; Kim & Wei, 2002). Bowe and Domuta (2004) observe the herding behavior caused by the foreign investor during or the post-Asian financial crisis of 1997. Some studies found a significant role of a global leader like the US in explaining the Asian market herding (Chiang & Zheng, 2010; Chiang et al., 2013). Economou, et al. (2011) observed the existence of herding behavior in four European markets of Spain, Greece, Italy, and Portuguese during the global financial crisis. The episode of the recent subprime crisis in the US market has a transmission effect around the globe (Chiang et al., 2007). Thus it is imperative to include the variable of crisis effect in order to avoid misspecification errors. Therefore, this study hypothesizes that;

H_4: Relative to normal market conditions stock prices usually exhibit significant herding behavior towards aggregate market returns during the domestic market crisis.

H_5: Stock prices exhibit significant herding behavior towards aggregate market returns during the international financial crisis.

Data and Methodology

Data

The dataset consists of closing values of the sector and national level indices (Data Stream Global Indices level 1 and 2, respectively) dominated in national currencies and trading on Pakistani stock exchange covering a period of January 1995 to December 2015. The daily returns of all industrial indices are utilized and obtained from Datastream (Thomson Financial). The percentage change in natural logarithmic values of stock price index is used to calculate daily returns. Table 1 present the descriptive statistics of each sector returns trading in Pakistan Stock market.

Table 1

Descriptive statistics of market and industry Index returns in Pakistan Stock exchange

Index	Observation	Mean	St. Dev
Oil & Gas	5406	0.03%	1.88%
Chemicals	5406	0.03%	1.73%
Construction & Materials	5406	0.04%	2.88%
General Industries	5406	0.04%	2.38%
Auto & Parts	5406	0.07%	2.49%
Food Producers	5406	0.09%	1.74%
Personal Goods	5406	0.01%	2.60%
Tobacco	5406	0.04%	2.70%
Pharm & Biotech	5406	0.04%	1.69%
Telecommunication	5406	-0.02%	2.51%
Electricity	5406	0.02%	2.54%
Banks	5406	0.04%	2.02%
Insurance	5406	0.07%	2.91%

It can be observed that food producer yields the highest mean returns of 0.09 % followed by insurance and auto parts 0.07% respectively. Whereas, telecommunication sectors earn the lowest average returns of -0.02%. The pharmaceutical and biotechnology sectors display lowest volatility of 1.69% and Insurance is the most volatile at sector in the sample.

Methodology

The empirical test is based on the return dispersion model and classified into two categories. Former is the Constant coefficient models and later is the time-varying models of herding behavior. There is sound empirical research available on constant coefficient return dispersion models but very few studies discuss a non-time varying response of herding formation with the change in stock market portfolio returns. Whereas, it is observed that many structural changes are likely to occur during the period of extreme stress and the constant parameters fail to answer these market dynamics. The time-varying response of herding behavior in the equity market of Pakistan remained largely unexplored. Therefore, there is an immense need to identify this dynamic herding behavior.

Estimation using Cross-sectional standard deviation

The foundation of these models is based on the rational Asset pricing model. Christie and Huang (1995) propose that the stock returns dispersion can be used to identify herding in a specific market. They argue that in extreme markets, investor herd towards market portfolio and this effect

can be captured through a decrease in return dispersion. The basic idea behind this argument is the assumption that investors usually make decisions by following the market consensus and suppress their own belief and information based on fundamental factors. Christie and Huang (1995) suggested a cross-sectional standard deviation.

$$CSSD_t = \sqrt{\frac{\sum_{i=1}^{n}(r_{i,t} - r_{m,t})^2}{n-1}} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Where n represent a number of industries in the cumulative market portfolio, $r_{i,t}$ are the observed returns on industry i, $r_{m,t}$ is a cross-sectional average returns m of n industries in the market on day t.

This behavior is likely observed during periods of excessive market stress, as the possibility of mimicking the action of others and correlated behavior probably occur during such period. Therefore, this behavior can be examined through the following regression.

$$CSSD_t = \alpha + \beta_U D_t^U + \beta_L D_t^L + \varepsilon_t \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

Where, $D_t^U = 1$, represent the possibility of market portfolio returns in the extreme upper tail, and 0 for the rest of observations in a given time period. $D_t^L = 1$, represent the possibility of aggregate market portfolio returns in the extreme lower tail, and 0 for the remaining observations in a given time period. Therefore, the presence of herding behavior can be assessed by negative and significant $\beta 1$ and $\beta 2$ coefficients.

Estimation using Cross-sectional absolute deviation

Chang et al. (2000) further advanced the CSSD methodology in order to overcome the limitations. They assume that the dispersion in stock returns is a nonlinear function of aggregate market returns. They used absolute measure of dispersion instead of standard deviation, the cross-sectional absolute deviation (CSAD) can be modeled as follows.

$$CSAD_t = \frac{1}{N}\sum_{i=1}^{N}|R_{i,t} - R_{m,t}| \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (3)$$

The general quadratic form model developed by Chiang et al. (2000) is used to identify nonlinear relationship between CSAD and $R_{m,t}$ given below.

$$CSAD_t = \gamma_0 + \gamma_1 |r_{m,t}| + \gamma_2 r_{m,t}^2 + \varepsilon_t \quad \text{...} \quad (4)$$

Where, CSAD measures cross-sectional return dispersion and $|Rm,t|$ is an equally weighted realized return of industry index in its absolute form on the day "t". The existence of herding is explained by the negative relationship of CSAD and R^2m,t. Significant negative coefficient γ2 imply the presence of investor herding behavior.

In order to figure out possible asymmetry under diverse market conditions, a linear term Rm,t is included by Chiang and Zheng (2010). Under distinct market conditions, this linear term captures the asymmetry in investor behavior. The relative asymmetry in returns and dispersion is calculated by the ratio $(\gamma_3 + \gamma_2) / (\gamma_{3\_} \gamma_2)$, where $\gamma_3 + \gamma_2$ represent relationship when $Rm,t > 0$, while $\gamma_3 - \gamma_2$ exhibit the relation when $Rm,t \leq 0$ (Duffee, 2001).

$$CSAD_t = \gamma_0 + \gamma_1 R_{m,t} + \gamma_2 |R_{m,t}| + \gamma_3 R_{m,t}^2 + \varepsilon_t \quad \text{...................................} \quad (5)$$

Robustness check-in crisis period

In this section, the effect of the different local and global financial crisis is tested. According to literature, it is evident that herding is more intense during crisis periods. For domestic crisis, this period is classified as the stock market crash of 2005 (March, 2005), market Crash of 2006 (second quarter of 2006) and most recent and prolonged one is of 2008 (May 2008 to January 2009). To explore the impact of the global crisis two major crisis are studied, Asian financial crisis of 1997(July 1997 to January 1998) and the Global financial crisis of 2008 (August 2007 to April 2009). To investigate this particular impact, Eq (4) is extended by adding a slope dummy of the crisis period.

$$CSAD_t = \gamma_0 + \gamma_1 |r_{m,t}| + \gamma_2 r_{m,t}^2 + \gamma_3 D^{Crisis} r_{m,t}^2 + \varepsilon_t \quad \text{...............................} \quad (6)$$

Where D[crisis] takes the value of 1 on the trading day during crisis and 0 otherwise.

Time-varying Dispersion Models

The above-mentioned methodology is based on the constant coefficient model and static in nature. Chang et al. (2000) model demonstrate the average relation between the square term of portfolio market returns and cross-sectional dispersion. The Kalman filter approach can be used to obtain time-varying or dynamic relation. Chiang et al. (2013) utilize this approach in a sample of ten Pacific basin markets and find strong evidence of time-varying herding behavior in all markets with the exception of the US market.

This method is described as:

$$CSAD_t = \gamma_0 + \gamma_1 \left| r_{m,t} \right| + \gamma_2 r_{m,t}^2 + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

$$\gamma_{i,t} = \gamma_{i,t-1} + v_{i,t}, \quad v_{i,t} \sim N(0, \sigma_{v,i}^2), \qquad where \; i = 0,1,2 \quad \ldots\ldots\ldots\ldots\ldots (8)$$

Equation (7) is a measurement equation and $[\gamma_0, \gamma_1, \gamma_2]'$ is a vector of state variables. Equation (8) is a transition equation where the random walk process is followed by the state variables. The error terms are assumed to be time-independent and follow a Gaussian noise processes. State series $\gamma_{2,t}$ calculated by kalman filter estimation examines the time variation of herding formation in a particular market during a period.

Results and Discussion

Descriptive statistics

Table 2 presents descriptive statistics of the equally weighted portfolio market returns, CSSD, and CSAD in industrial returns of Pakistani market. The time span of study spreads from 1995 to 2015 with 5406 daily observations. The range of daily market portfolio returns is from -11.645% to 10.6161%. Market portfolio returns have an average value of 0.041% with a total deviation of 1.3128%. According to the assumption of CAPM both CSSD and CSAD should increase with an increase in returns. In the presence of herding behavior all individual returns should move in the same direction and CSSD and CSAD must display value nearer to zero. The cross-sectional standard deviation of returns has a mean value of 1.7147% with a standard deviation of 1.091%. The range of this dispersion lies between 0.0023 to 15.47%. Comparative to CSSD, CSAD show less dispersion as the range of returns is low and lie between 0.0011% to 4.6496% with a mean value of 1.27% and a standard deviation of 0.64%. Both CSAD and CSSD display higher dispersion from individual returns.

Table 2
Descriptive Statistics of CSSD and CSAD

Variables	**Obs**	**Mean**	**Std. Dev.**	**Maximum**	**Minimum**	**Skewness**	**Kurtosis**
RM	5406	0.0401	1.3128	10.6161	-11.6447	-0.3282	9.1728
CSSD	5406	1.7147	1.0909	15.4709	0.0023	2.1838	15.2286
CSAD	5406	1.2726	0.6383	4.6496	0.0011	1.4388	6.8093

Regression results based on CSSD

Table 3 reports the results of estimates of herding measure in extreme market conditions. The estimation was performed using Newey-West consistent standard errors.

Table 3
Estimates of herding measure in extreme market conditions: CSSD

Panel A: Market returns in extreme 1% of the distribution.					
Variables	**α**	**β_U**	**β_L**	**Adj R²**	**F-Statistics**
CSSD	0.0168***	0.0298***	0.0249***	0.09	255.92***
	(60.16)	(4.55)	(3.32)		
Panel B: Market returns in extreme 5% of the distribution.					
Variables	**α**	**β_U**	**β_L**	**Adj R²**	**F-Statistics**
CSSD	0.0158***	0.0153***	0.0140***	0.15	493.51***
	(109.88)	(23.30)	(22.21)		

***, ** and * represent significance at a level of 1%, 5% and 10%.

Panel A and B report the result of two sets of dummy variables, where the dummies consist of the extreme returns that lie in 1% and 5% of the lower and upper tails of the distributions. All the estimated coefficient is significantly positive, these findings are coherent with the Christie and Huang (1995) and maintain the validity of rational asset pricing model. These results are against the hypothesis and negate the presence of herd behavior due to increased dispersion among individual and market returns. Under these circumstances, individual does not follow the market consensus and markets functioning is according to the basis of rational asset pricing model. Chen (2013) also reports the absence of herding in a large set of the global stock market during extreme market conditions. Javaira and Hassan (2015) observe similar results in Pakistani stock market and report positive significant coefficient in these two markets indicating the absence of herding in extreme market conditions.

Estimates of herding behavior using CSAD

This study utilizes Newey-West consistent estimator (1987) to estimate Eq (3) and (4) using the methodology recommended by Chiang and Zheng (2010). The study also employs an empirical model developed Chang et al. (2000) twice by imposing a restriction of $\gamma_2 = 0$ and then by relaxing the restriction of $\gamma_2 = 0$. Table 4 and Table 5 contains the results estimated using the model suggested by Chang et al. (2000) model with restriction and without restriction.

Table 4
Estimates of herding based on the constant coefficient model: CSAD

Variables	γ_1	γ_2	γ_3	Adj R^2	F-Statistics
CSAD	0.009***	0.493***	-3.078***	0.31	1229.45***
	(77.80)	(35.07)	(-11.15)		

***, ** and * represent significance at a level of 1%, 5% and 10%.

It is evident from table 4 that the nonlinear term γ_3 is significant and negative for Pakistani stock market, according to Chang et al. (2000) the negative and significant coefficient of $R^2_{m,t}$ indicates the presence of herding. This outcome is consistent with Malik and Elahi (2014) and contradicts Javaira and Hassan (2015), they find no sign of herding in the Pakistani equity market during normal market states. These results support the hypothesis of nonlinearity in the relationship between cross-sectional dispersion of returns as negative nonlinear term indicate the existence of herding behavior and deviation from efficiency in Pakistan stock market in general.

Table 5
Estimates of asymmetric effect based on the constant coefficient model: CSAD

Variables	γ_1	γ_2	γ_3	γ_4	Adj R^2	F-Statistics
CSAD	0.009***	0.024**	0.492***	-3.007***	0.315	828.51***
	(51.980)	(2.502)	(16.417)	(-3.914)		

***, ** and * represent significance at a level of 1%, 5% and 10%.

Table 5 reports the results based on equation 5, the relative asymmetry in market returns and cross-sectional dispersion is captured by the term $\gamma_2 \neq 0$. The combined value of $\gamma_3 + \gamma_2$ portrays the positive and significant relationship between market returns and return dispersion, and market returns have a greater impact on return dispersion as Rm > 0. The positive returns in the market $(\gamma_3 + \gamma_2)$ have an absolute 10% larger effect than negative returns $(\gamma_3 - \gamma_2)$. This effect can be calculated by the ratio $(\gamma_{2+} \gamma_3) / (\gamma_{3-} \gamma_2)$. These returns are also supportive of the evidence that herding behavior present in the Pakistani stock market and contradict previous findings of Javed, Nousheen and Bilal (2011) and Javaira and Hassan (2015).

Robustness Analysis

In this section, for a robustness check, the model is extended to report several episodes of volatility that may influence our implications. A panic situation or economic forces are the driven forces behind the crisis. Herding intensity is high in turbulent markets.

In the first subsection, the effect of the domestic crisis in the Pakistani equity market is

analyzed and three crisis period of 2005, 2006 and 2008 are chosen for this analysis. The first two crises was due to the combined effect of speculations and bad governance. Whereas, the third crisis is linked with a number of national and international news that include political as well as economic issues. Finally, this study examines the effect of the consequence of the Asian crisis that occurs in 1997 and the global financial crisis happened in 2008.

Table 6

Estimates of herding behavior during crisis Period: CSAD

Panel A: Financial crisis of Pakistani Market						
Variables	γ_1	γ_2	γ_3	γ_4	**Adj R²**	**F-Statistics**
Crisis period: March 2005						
CSAD	0.009***	0.496***	-3.074***	-3.171***	0.31	823.204***
	(51.177)	(16.191)	(-3.937)	(-2.963)		
Crisis period: April 2006-June 2006						
CSAD	0.009***	0.498***	-3.078***	-4.563***	0.32	829.826***
	(51.096)	(16.273)	(-3.936)	(-4.159)		
Crisis period: May 2008-January2009						
CSAD	0.009***	0.496***	-3.016***	-1.557***	0.31	823.436***
	(77.595)	(35.208)	(-10.894)	(-2.855)		
Panel A: Financial crisis around the world						
Variables	γ_1	γ_2	γ_3	γ_4	**Adj R²**	**F-Statistics**
Crisis period: July 1997 to January 1998						
CSAD	0.009***	0.492***	-3.092***	0.792	0.31	819.967***
	(51.095)	(16.086)	(-3.972)	(0.401)		
Crisis period: August 2009 – April 2009						
CSAD	0.009***	0.505***	-2.995***	-2.987***	0.32	839.190***
	(51.275)	(16.418)	(-3.729)	(-2.567)		

***, ** and * represent significance at a level of 1%, 5% and 10%.

Table 6 provides an insight into the impact of the crisis on herding behavior. From the above results, it is concluded that all three local crisis have a significant impact on Pakistani investor herding behavior. The findings are similar to the Javaira and Hassan, (2015) they report significant herding only during the crisis situation.

It is also observed that the only global financial crisis of 2008 has a significant influence on the investment decision-making process of an investor. These findings are coherent with the observations of Chiang and Zheng (2010). Garg and Gulati (2013) also observe similar behavior

during the global financial crisis in India.

The empirical evidence supports the hypothesis that domestic and global crisis have an impact on investors herding behavior. Therefore, it can be concluded that during a period of market frictions investor is less likely to base their decisions on market fundamentals and prices are forced away from their fundamental values. Markets are inefficient and the rational asset pricing model no longer is applied to the fair price determination. The investor usually set aside their knowledge and track the market consensus in order to avoid uncertainty. This effect is common for both national and global crisis situations.

The possible reason for the significant influence of the global financial crisis on herding in an Asian market of Pakistan can be due to information asymmetry and inability to interpret the available information set appropriately in the market. In a developing market like Pakistan, investors usually follow the news from the global market and design their strategies grounded on the investment strategies of major institutional investors or follow the trend of developed and sophisticated markets when shock is common like global crisis. The strategies designed by mimicking the action of these institutional investors are further followed by the individual investors in markets like Pakistan. Thus, generating an activity that results in herd formation.

Time-varying herding behavior

Table 7 enlighten the time-varying nature of herding coefficient. Herding coefficient, γ_2,t is the state series of nonlinear term in Eq. (7). Mean and median for the herding coefficient is negative and the maximum observation is 0.028, nearer to zero. The negative sign of coefficients also supports the evidence of herding activity and suggest that time-varying herding is widely present in this market.

Table 7
Summary statistics for herding coefficient in Pakistan Stock exchange

	Obs	**Mean**	**Median**	**Std. Dev.**	**Max**	**Min**	**Skewness**	**Kurtosis**
γ_2,t	5406	-0.046	-0.049	0.049	0.086	-0.166	0.156	2.844

From figure 1, it is observed that most of the herding coefficient are negative and time-varying in nature. This indicates significant herding activities in Pakistan economy in most of the time period with the exception of few positive spikes during 2000, 2001 and 2004. The herding coefficient is -0.101 and especially during and post-crisis periods it remains negative.
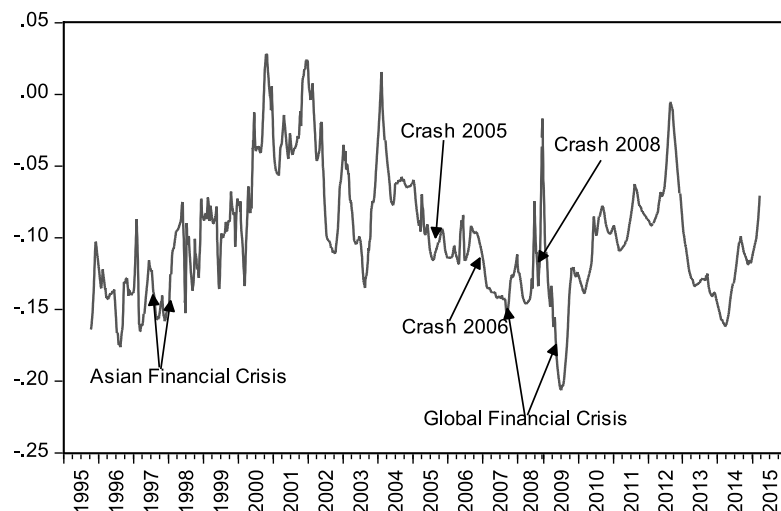
Figure 1: The series of herding coefficient overtime for the Pakistani stock market.

Two major international financial crisis are taken into consideration, the Asian financial crisis of 1997 and the global financial crisis of 2008. For the domestic market, crisis period was defined as the 2005 stock market crash. Market display persistent herding behavior during all domestic crisis period. During the crisis and post crisis period herding coefficient remains significant and negative. These findings agree the outcomes of Chiang et al. (2013), as they find similar results in ten Pacific Basin markets except the US market. Most of the emerging markets exhibit similar behavior. Yang and Chen (2015) find the dynamic response of herding during crisis and post-crisis period in Greater China and US market and concluded that investor behavior in Asian markets like China is more sensitive to the Global market factors. Therefore, it can be concluded that Pakistani investor normally exhibits herding behavior which is time-varying in nature. It can be attributed to the presence of greater influence of speculators, information asymmetry, bad governance, and market inefficiency.

Conclusion

Herding is a psychological state where investors rationally or irrationally mimic the action of market players leading to the market inefficiency and extreme stress. This study empirically examines this phenomenon in Pakistani stock market by using daily return data for industrial stock returns from January 1995 to December 2015. This study was unique in many aspects. Previous studies on herding behavior in Pakistan uses firm-level data; this study followed the approach of Chiang and Zheng (2010) by using daily returns on Industrial indices. Secondly, this research not only analyzed herding behavior with the constant coefficient model but also examine time-varying herding behavior

through Kalman filter estimation. Lastly, the effect of the national and international financial crisis is also investigated on herding behavior.

In this study linear model suggested by Christie and Huang (1995) indicates an increase in dispersion and provide no evidence of herding during periods of lofty market swings indicating a divergence in the market trading pattern. These results are in agreement with the previous literature and maintain the validity of rational capital asset pricing model (CAPM).

Results based on Chang et al. (2000) and Chiang and Zheng (2010) models indicate significant herding behavior in Pakistani stock market and results and it can be implied that nonlinear model can better capture the interdependence of asset and market returns (Chen, 2013). This nonlinearity is well established in previous research. The main aim of this research was to analyze the time varying response of herding behavior in a country like Pakistan, where the main indicators of the economy are monitored on the basis of the functioning of the Stock market. The evidence proves the existence of the time-varying response of herding behavior in the Pakistani stock market. This behavior is more pronounced during and post-crisis period.

It is also concluded that investor sentiment is highly affected by abnormal activity in the market. In a crisis situation, investors rather than obtaining fundamental information rely on the investment activities of other investors in the market and this effect appear to be severe during extreme conditions of market and specifically in a crisis like adverse situations. Evidence suggests that Pakistani investors are highly influenced by Global leaders rather than their Asian counterparts. This tendency is supported as study finds the insignificant effect of the Asian crisis and significant impact of the Global Financial crisis of 2008.

Investor generally followed the market consensus due to overreaction to adverse news prevailing in the market. The investor's decision is highly influenced by the sentiments, as the continued existence of herding behavior suggests. In the presence of widespread fear, the overreaction of news and speculation, little effort to make more conscious decision making by obtaining fundamental information could result in improved efficiency in the stock market. In addition, a certain measure like liberalization of financial markets, the formation of risk management practices, enhancing financial disclosure standards can be initiated by the regulators in order to improve market efficiency. Increased informational efficiency as a result of the stated repercussion can induce rational decision making and reduces the impact of behavioral tendency like herding behavior.

One of the limitations of this research is the use of secondary data to investigate herding behavior. It is observed that if a market face sentiment swings results based on survey data provide unreliable results. Another limitation of this research is the use of market activity data that capture the herding behavior of investors in general. Future research can focus on the herd formation caused by institutional investors as the market is dominated by concentrated corporate ownership.

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DEVELOPMENT AND VALIDATION OF CORPORATE HUMANE SUSTAINABILITY

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Abstract

The dominant approach developed in academics and industry has largely focused on the development of internationally recognized perspectives, frameworks and instruments. Moreover, there are different methods to measure several corporate sustainability perspectives. Despite of the above mentioned facts, no scale has ever been developed to measure Corporate Social Responsibility (CSR) from corporate humane sustainability (CHS) perspective. This research provides guideline to standardize CHS perspective, develops the first-ever CHS scale, identifies its dimensions and assesses humane sustainability. Theoretically speaking, CSR has been repeatedly measured through scale development process on different perspectives; still this is the first-ever study that measures humane sustainability perspective through scale development process. The purpose of the study is to measure CHS through scale development study. Three hundred senior managers and directors of ninety companies are surveyed. Exploratory factor analysis and principal component analysis are applied. 20 items are extracted in the scale development process. 5 factors including community welfare, employee rights, work-life balance, human capital development, discrimination and grievance are identified from Orthogonal Varimax Rotation.

Keywords: Corporate Social Responsibility, Corporate Humane Sustainability, Scale Development, Community Welfare, Employee Rights, Work-Life Balance.

JEL Classification: G390

Introduction

The reality is that business run inside the society, and therefore, business has to portray to all stakeholders their intentions and the best way to do that is to provide a measurement of its impact. This

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idea has created awareness that CSR should be measured (Chatterji, 2011). Historically, complicated and diverse contribution to Corporate Social Responsibility (CSR) has enhanced its understanding as a vague and ill-defined concept with limitations (Preston & Post, 1975; Wolfe & Aupperle, 1991; Marrewijk, 2003; Turker, 2009; Park, Song, Choe & Baik, 2015; Sheehy, 2015). CSR has been more or less controversial over the past 50 years (Carroll, 2015) and has received increasing attention in the past decades (Flammer, 2013, Osagie, Wesselink, Blok, Lans, & Mulder, 2016). This sixty-five years old term has been evolved over the last seven decades and multiple factors has changed its concept contextually. Critically speaking, the argument "CSR is a brilliant term; it means, something, but not always the same thing, to everybody" by Votaw (1973) is more valid today. Today an industrial movement defining broader corporate social responsibilities in terms of corporate sustainability for working conditions, for local communities, for internal customers and for ethical management practices has gathered momentum and taken hold. This new driving force has now become the real soul of corporate social responsibility (CSR). In such scenario, developing a scale of corporate humane sustainability incorporating almost all contemporary CSR perspectives, theories and models may give direction to the global as well as indigenous corporate leaders to practice social responsibility in terms of humane sustainability. This study is an attempt to present a scale on comparatively broader and comprehensive concept of corporate humane sustainability (CHS). CHS is not an optional and add on nor is it an act of philanthropy. A firm following the CHS concept is the one that runs a profitable sustainable business that takes into account all intrinsic and extrinsic business, and humane intentions and effects it has on the society (Chatterji, 2011).

The dominant approach developed in academy and industry has largely focused on the development of internationally recognized perspectives, frameworks and instruments. And there are different methods including scales, indices, databases or through content analysis to measure several corporate social responsibility (CSR) perspectives (including unidimensional concept, stakeholder theory, triple bottom line, Carroll's CSR pyramid and corporate sustainability) but all of them have some limitations (Turker, 2009; Pe´rez et al., 2013). The existence of 'no clear universal definition' makes CSR theory development and measurement more difficult (Park, Song, Choe & Baik, 2015). In order to solve the problems posed by different theoretical perspectives, development of more scales to explain the components of CSR is needed (Pe´rez et al., 2013). An instrument measuring different dimensions and factors of CSR that incorporates almost all major perspectives through theoretically viable method is still missing (Pe´rez & Martı´nez, 2013; Turker, 2009). This study explores and measures the broader, applicable and viable perspective of corporate humane sustainability through scale development process.

Literature Review
Corporate Humane Sustainability

In academic debates and business environments hundreds of concepts and definitions have been proposed referring to a more humane, more ethical, more transparent way of doing business. The

fundamental point in business performance is making it accountable, ethical, and humane (Epstein, 2000). The corporation should promote humane values under CSR with a wide scope rather than concentrate solely on economic benefits (Han, Lee, & Khang, 2008). Corporate capitalism, business organizations and their leaders must operate ethically and humanely rather than deliberately unethical and hardly humane (Epstein, 2000). Sachs (1989) defines Social sustainability, as, the setting of a development process bringing about a steady growth with greater equity of income and asset distribution so as to ensure a substantial improvement in the entitlements of the broad masses. As a matter of fact, humane societies should evaluate economic systems not by rhetoric or ideology, but by whether or not they increase economic well-being for all individuals and groups, minimize poverty and hardship, increase the sum of human satisfaction, and enhance the quality of life (Fitch, 1976). Therefore, humane actors nurture qualitative improvements in life, culture, society and environment (Ger, 1997) and hence promote humane sustainability. Additionally, humane sustainability differs from human sustainability. Goodland (2005) defines human sustainability as maintaining human capital. The health, education, skills, knowledge, leadership and access to services constitute human capital. Whereas, humane sustainability seeks that deeply entrenched social and economic interests count as costs that must be weighed against welfare improvements that various social reforms would have and that various technological advances would make possible (Varner, 2010). Humane orientation is the extent to which a collective encourages and rewards individuals for being fair, altruistic, generous, caring, and kind to others whereas societal collectivism is the extent to which individuals express pride, respect, loyalty, and cohesiveness in their organizations or families (Muethel, Hoegl, & Parboteeah, 2011). Therefore, according to Muethel et al. (2011) the humane sustainability of CSR is broader than just social as it comprises of philanthropic (altruistic and generous towards community welfare) as well as considerate (fair, caring, & kind towards employee rights and benefits) aspects. The following literature depicts different constituents of corporate humane sustainability.

Community Welfare

Many researchers including Mahwah, Erlbaum, Jackson, and Nelson (2004) and Adam Smith (2005) observe that supporters describe CSR as an opportunity for business to look beyond slight economic returns and consider the broader social concern. Organizations having more interaction with general public are more prepared towards corporate giving (Porter & Kramer, 2002). NGOs (Non-Government Organizations) are considered as the secondary-stakeholders and a driving force and the prime motivators in the context of CSR (Bodwell et al., 2002; Knox, Maklan, & French, 2005; Nijhof et al., 2008). NGOs have multi-dimensional roles and influences in the corporate social responsibility performance, i.e. advisor, advocate, stakeholder and fund sponsor (Guay, Doh, & Sinclair, 2004). The corporate CSR strategies and the nature of NGO which corporation has to involve indicate the necessity, nature and effectiveness of CSR in corporate-NGO partnership (Nijhof et al., 2008). Philanthropy is a corporate activity to donate its part of resources for community and social development (Ricks & Williams, 2005). The corporate philanthropy is a tool of competitive advantage in both perspectives; the social development and economic development (Simon, 1995;

Collins, 1993).

Employee Rights

It should be the responsibility of the company to obey the regulatory obligation concerning an employee first (Momin, 2006). People in developed countries are increasingly conscious of the social performance, ethical issues, occupational health and safety, and relationships between business and community (Eweje, 2005). Labor laws adheres great interest with labor association and unions. The most important factor for a firm is to consider the implementation of international and national labor laws (Moran, 2005). Respect is a basic need that employee demand in a work place. Maslow (1954) identified respect as an esteem need for the motivation of employees in a work place. Respect is a driving force behind any accomplishment of a worker. Lee and Ok (2011) suggested that workplace friendship not only improved communication among employees, but also respect.

Work-Life Balance

The significance of work-life balance issue in researches and its repaid emergence trend are mainly due to corporatization of societies (McDonald et al., 2007). The work-life conflict arises in two scenarios in employee-organizational context a) When employee does not succeed to differentiate the work line and family line due to organizational culture limitations, b) The organization does not understand the needs of employee for family/social life in constitution of organization culture (Malik & Khalid, 2008).

Human Capital Development

Many skilled workers specifically in developed countries, now are considering CSR policy before they accept a job offer. It has been proven empirically that most people will like to do business and work for a corporation with good social and environmental policies (Dierkes & Zimmerman, 1994; Murphy, 1995; Phillips, 2003). In this regard, Beausaert et al. (2011) findings suggested that Personal Development Plan's (PDP) are most effective when they are perceived as for learning and development purposes by the employees. CSR encourages and promotes organizational learning and inventive cultures that are accustomed to social environments in which companies operate. It favors the improvement of new skills among managerial workers (Allouche, 2006).

Discrimination & Grievance

Corporation must provide opportunities to minority and under-privileged groups and must actively work to support social justice (Zenisek, 1979). Furthermore, both the genders must be given equal prominence, authorization and involvement in all domains of public and private life (Council of Europe, 1998). A large scale studies are present in the performance appraisal process systemization in

interaction, procedure and distribution fairness and its impact on the employee satisfaction, retention, attraction, organizational justice and related fairness practices of organizations (Ponnu & Chuah, 2010; Elamin & Alomaim, 2011). Grievance procedure is a set of formal steps which allows challenging a decision of lower management to higher management (Vyver, 1965). Cappelli and Chauvin (1991) argue that grievance is an employee objection on the management procedures or reservation with management procedures, and grievances are the tools to determine a complete image of organization-employee relationship.

Methodology

This study revolves around corporate humane sustainability (CHS) and figure 1. Reflects scale development process. The first phase is the conceptualization of the scale for measuring proposed corporate humane sustainability perspective of CSR. In next phase, the scale is mainly designed through a standard scale development process (Bagozzi et al., 1991). Many researchers have developed scales and used literature review as starting point followed by item identification, statement formulation and group segregation in the development of such a scale (Lombaerts et al., 2009). This study adopts the same method to strengthen its theoretical base and for reasons of survey ability. In the review process, statements and items corresponding to CHS perspective are identified from academic as well as industrial literature. These items/ statements are identified mainly from CSR existing scales, scales related to constituents of CSR, instruments used by practitioners to measure/ assess CSR, items/indicators used to measure CSR through methods other than scales and statements mentioned by the authors to discuss any perspective/constituent of CSR. For creating an initial item pool, 209statements are derived from the previous literature including but not limited to Carroll (1979); Aupperle (1984), Singapakdi et al. (1996), Maignan et al. (1999), Maignan and Ferrel (2000), Maignan and Ferrel (2001), Quazi and O'Brien (2000),Fyre and Breaugh (2004), Ray (2005), Shahin and Zairi (2007), Baughn et al.(2007), UNDP/STCIC (2007), Jamali (2008), Wilkerson, Evans and Davis (2008), Gyves and Higgins (2008), SAM (2008), Shafer and Simmons (2008), Qu (2009), Turker (2009), Björklund (2010), Galbreath (2010), Heyder and Theuvsen (2010), Meiseberg and Ehrmaan (2012), Skudiene and Auruskeviciene (2012),Wang and Bansal (2012), Etheredge (1999), European Commission (n.d.).

Majority of items/statements are extracted from diverse perspectives with limited spectrum. The perspective of Corporate Social Responsibility is broader and comprehensive in its nature and gives reason to researcher to assess CSR specific corporate humane sustainability related items from the literature. Consequently, 40 statements and items corresponding to corporate humane sustainability perspective are extracted from 209 identified CSR (related) items/statements.

The selected items/statements are reviewed by an expert panel of ten practicing CSR professionals and ten researchers to determine the face validity and content validity of the items. Based on comments raised by professionals and researchers 12 items are revised slightly concerning

phrasing and clarity, 10 items/ statements are omitted and no new item is added in this process. As result, 40 selected items/statements are further reduced to 36 items through item validation. During pilot testing, these selected items for their initial assessment are surveyed from sample of 35 respondents; seven respondents from each of the five selected industries of Pakistan. Data collected from pilot survey is examined on two levels. In the first level assessment, items with very high correlation *(i.e. p >0.90)* are discarded. It drops 10 more items. In the second level, Exploratory Factor Analysis (EFA) produces factors or components with their alike variables. Items which either load on multiple factors or include less than 3 items are also discarded. This reduces scale to 20items only.

Media, Telecom, Banking, Petroleum and Fertilizers & Chemicals industries of Pakistan have been selected for this study due to their high socio-economic environmental impacts, fastest growth and consistent CSR reporting behavior for the last two decades in Pakistan. Judgmental sampling technique is used to conduct survey. The top and middle management in these companies is scrutinized based on individual's characteristics include individual's job description, role in CSR related policy making and decision making initiatives. The respondents are also notified on the fact that their participation is voluntary and anonymous. Glavas and Godwin (2013) argue that CSR perception may be more important than the actual social responsible behavior itself. Employees are not only aware of organizations' practices (Story & Neves, 2015). Therefore, employees place different importance on CSR given their role in the organization. Indeed, managers may be more concerned and aware about CSR than non-managers. More truly, CSR practices may be related to the philosophy and actions of the entire top management team (Wu, Kwan, Yim, Chiu & He, 2015). That is why this study focuses only top management and CSR executives for responses. During the survey 300 individuals from 90 companies have been approached; 18 companies from each industry. In total, 201 individuals from 69 national and multi-national companies have responded properly and their responses are considered for data analysis. Total survey response rate is 67 percent whereas only 76.66 percent companies allow gathering response with highest in banking i.e. 26.5% and lowest in media industry 13%. At maximum, five respondents from each company are asked to fill company questionnaire. 69% of the respondents are working in the service sector. The fertilizers and chemicals and petroleum sectors represent 17% and 14% respondents, respectively. In factor loading, total 5 factors are identified from Orthogonal Varimax Rotation. No items is discarded form data set due to their double barrel values. Finally, scale is reduced to 20 items.

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│   Reviewing Different Perspectives of CSR and  │
│  Identification of Corporate Humane Sustainability │
│  Perspective as Comprehensive Perspective reflecting │
│        social responsibility of corporate      │
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│  Identification of Different Constituents of Corporate │
│              Humane Sustainability             │
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│    Identification of CHS related CSR Items form   │
│        Prevailing Literature (209 CSR related    │
│     statements/items collected from literature. 40 items │
│        related to CHS perspective are identified)  │
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│  Item Validation (Face Validity and Content Validity). │
│   Statements reduced to 36 in a process of validation │
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│  Pilot Testing (n= 35) Assessment level 1: Correlation │
│   (36 to 26 items) Assessment level 2: EFA (26 to 20 │
│                     items)                    │
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│               Main Survey (n= 201)             │
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Figure 1: Corporate Humane Sustainability - Scale Development Process

EFA of Corporate Humane Sustainability

Correlation Matrixa – Corporate Humane Sustainability at Appendix Bshows Pearson correlation co-efficient between all pair and one-tailed significance of these co-efficient among the items of corporate humane sustainability. The correlation result shows that majority of the items have positive correlation withno multicollinearity and value above 0.9. For measuring the sampling adequacy, Kaiser-Mayer Olkin (KMO) and significance of Bartlett's test of sphere city has been used. KMO test value is 0.728 which shows that sample size is acceptable for factor analysis. The Bartlett's test for sphericity is used to test the null hypothesis that the correlation matrix is identity matrix. The significance value of .000 clearly rejects the null hypothesis. Hence correlation matrix is not an identity matrix.

The table 1 presents the Eigen values of linear factors before extraction, after extraction and after rotation. It is noted that the first six components account for major proportion of variance because their Eigen value is greater than 1. The initial Eigenvalue for component 1 is 5.02 which account for 25.094% variance. Rotation has the effect of optimizing the factor structure (Field, 2009)

and that's why it can be realized that Eigenvalues of all six factors are equalized. Hence they are equally important. The rotated component matrix table 2 provides the loading of each item on selected number of factors. The Orthogonal Varimax rotation method has been used for the factor rotation. The communalities values present the extracted value of variance of each item through Principal Component Analysis (PCA).

Table 1
Total Variance Explained – Corporate Humane Sustainability

Components	Initial Eigenvalues			Extraction Sums-of-Squared-Loadings			Rotation Sums-of-Squared-Loadings		
	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)
1.	5.02	25.094	25.094	5.02	25.094	25.094	2.81	14.027	14.027
2.	2.16	10.821	35.915	2.16	10.821	35.915	2.52	12.58	26.607
3.	1.68	8.409	44.324	1.68	8.409	44.324	2.17	10.866	37.473
4.	1.53	7.634	51.958	1.53	7.634	51.958	2.14	10.683	48.156
5.	1.37	6.841	58.8	1.37	6.841	58.8	2.13	10.644	58.8
6.	1.06	5.278	64.078						
7.	0.92	4.581	68.659						
8.	0.88	4.417	73.076						
9.	0.83	4.135	77.211						
10.	0.69	3.433	80.643						
11.	0.65	3.252	83.895						
12.	0.57	2.846	86.741						
13.	0.51	2.53	89.271						
14.	0.46	2.306	91.577						
15.	0.44	2.187	93.764						
16.	0.36	1.778	95.542						
17.	0.31	1.548	97.09						
18.	0.25	1.254	98.344						
19.	0.19	0.932	99.276						
20.	0.15	0.724	100						

The factor 2 accounts for maximum loading for item no 9, 10, 11, 12 & 13. These items are related to discrimination policy, performance appraisal process and grievance policy so this factor is labeled as "Discrimination & Grievance". The items 1, 2, 3, 4, & 5 are loaded on factor 1. These items are associated with community engagement, charitable initiatives and partnership with NGO's

so factor 1 is labeled as "Community Welfare". Item 17, 18, 19, & 20 are loaded on factor 4. Since these items are related toflex timing policies and family friendly policies so this factor is named as "Work- Life Balance". Three items are loaded on factor 3.i.e. item no 14, 15, & 16. These items include personal development and employee skill development. This factor is then labeled as "Human Capital Development". The remaining item 6, 7 & 8 are loaded on factor 5. These items are related to compliance with labor laws, respect, employee benefits. So this factor is labeled as "Employee Rights".

Table 2

Rotated Component Matrix

	1	2	3	4	5	Communalities
1	0.63					0.509
2	0.77					0.699
3	0.83					0.78
4	0.66					0.646
5	0.58					0.386
6					0.719	0.63
7					0.875	0.807
8					0.804	0.699
9		0.45				0.448
10		0.78				0.643
11		0.56				0.425
12		0.91				0.843
13		0.47				0.401
14			0.80			0.659
15			0.82			0.688
16			0.75			0.596
17				0.67		0.501
18				0.69		0.578
19				0.53		0.391
20				0.62		0.43

Extraction Method: PCA
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Table 2. Rotated Component Matrix – Corporate Humane Sustainability

Reliability Test

The internal consistencies of scale are assessed by computing Cronbach's alpha.

Table3
Cronbach's Alpha of CHS Scale

	Chronbach's Alpha	No. of Items	Inter-Item Correlations Mean
Community Welfare	0.761	5	.432
Employee Rights	0.767	3	.530
Work-Life Balance	0.601	4	.271
Human Capital Development	0.714	3	.475
Discrimination & Grievance	0.740	5	.377
Corporate Humane Sustainability	0.815	20	.192

Cronbach's alpha value of each of the construct is greater than 0.6 and is considered acceptable (Cortina, 1993; Kline, 2000; Lance et al., 2006). As computed in table 3. Cronbach's alpha of scale, the inter-item correlation is 0.192, and the scale includes 20 items and 5 constructs. The suggested alpha for similar conditions described by Cortina (1993) is 0.64. Cronbach's alpha of the CHS scale (i.e. 81.5%) is considered as good (George & Mallery, 2003; Kline, 2000). Interestingly, Cronbach's alpha of all constructs of CHS except that of Work-Life Balance (i.e. 0.601), is greater than 70% i.e. also acceptable (Kline, 2000).

Discussion and Conclusion

Corporate sustainability generally includes socio-economic environmental concerns of CSR. This research provides guideline to standardize social concern of CSR i.e. corporate humane sustainability perspective, develops the first-ever corporate sustainability scale, identifies its dimensions and assesses corporate humane sustainability based on practitioners' suggested, theoretically justified and empirically tested scale. Poor academic evidences have been shown on reporting CHS practices through primary data on any scale indigenously in under-developed or less-developed country (Khalid & Nasir, 2015). In Pakistan, little work has been done in this field. This is the first-ever study that measures corporate humane sustainability perspective through a scale development process and can serve as a base to further identify and measure its indicators, constructs and dimensions. Still there is a need for further studies in other parts of the world especially in developed countries to confirm the validity, generalizability and current structure of the scale. Three separate studies may also be

conducted for trading, manufacturing and services industries on the same base items.

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Appendix – A

Constructs	Indicators	Items	Source
Community Welfare	Community Engagement Charitable Initiatives Partnerships	Our company gives adequate contributions to ch…	Maignan&Ferrel (2001), European Commission (n.d)
		Our Company contributes to campaign and proje…	Turker (2009)
		Our Company encourages its employees to join…	Maignan&Ferrel (2001)
		Our Company encourages its employees to parti…	Turker (2009)
		Our Companies supports NGO's working in loca…	Turker (2009)
		Our Company respect employee rights beyond…	Turker (2009)
Employee Rights	Compliance with labor laws Respect Employee Benefits	Employee Relation are highly important for our…	Turker (2009)
		The Company has effective monitoring system…	UNDP/STCIC (2007)
Work- Life Balance	Flexible Timing Policy Family Friendly Policy	Flexible company policies enable employees to…	Maignan&Ferell (2001), European Commission (n.d)
		Our company implements flexible policies to…	Turker (2009), European Commission (n.d)
		The company performs work-life balance…..	Fyre&Ereaugh (2004)
		The organization has a formal and effective fam…	European Commission (n.d)
		Our Company supports employees who acquire…	Maignan& Ferrell (2001)
Human Capital Development	Personal Development Employee Skill	Our Company policies encourage employees to…	Turker (2009), European Commission (n.d)
		Our company offers apprenticeship/internship opportunities…	European Commission (n.d)
Discrimination & Grievance	Discrimination Policy Performance Appraisal Process Grievance Policy	Internal policies of our company prevent Discrimination…..	Maignan& Ferrell (2001)
		The managerial decisions made at our com…	Turker (2009)
		Fairness towards co- workers and Business partners…	Maignan& Ferrell (2001)
		There is a process to ensure that adequate step…	European Commission (n.d)
		Our Company has formal representation and…	UNDP/STCIC (2007)

(Humane Sustainability)

Appendix – B

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1.000																			
2	.458	1.000																		
3	.587	.616	1.000																	
4	.214	.468	.652	1.000																
5	.194	.293	.209	.161	1.000															
6	.179	.310	.199	.247	.625	1.000														
7	.054	.252	.190	.294	.365	.602	1.000													
8	.181	.278	.224	.067	.137	.228	.178	1.000												
9	.246	.501	.330	.251	.113	.158	.202	.167	1.000											
10	.265	.233	.343	.393	.174	.165	.138	.248	.128	1.000										
11	.213	.242	.315	.245	.156	.197	.215	.194	.165	.304	1.000									
12	.258	.274	.274	.298	.141	.166	.067	.127	.257	.301	.167	1.000								
13	.253	.235	.327	.293	.142	.160	.124	.183	.155	.373	.720	.561	1.000							
14	.221	.332	.335	.255	.243	.155	.191	.211	.131	.374	.352	.284	.337	1.000						
15	.133	.028	.040	.005	-.161	-.053	.109	.028	.023	.171	.030	.136	.108	-.027	1.000					
16	.083	.113	.046	-.011	-.129	-.043	.104	-.017	.000	.102	-.119	.088	-.047	-.101	.541	1.000				
17	.246	.115	.120	-.018	-.065	.080	.179	.200	-.015	.107	.049	.224	.147	.059	.425	.458	1.000			
18	.266	.271	.198	.076	.212	.182	.143	.282	.248	.337	.160	.170	.212	.245	.087	.048	.045	1.000		
19	.305	.256	.255	.075	.238	.204	.144	.341	.158	.419	.149	.156	.122	.275	.179	.129	.188	.401	1.000	
20	.026	.147	.012	.006	.109	.051	.065	.261	.156	.155	.145	.168	.183	.172	-.104	-.131	-.034	.194	.146	1.000
1		.000	.000	.001	.003	.005	.318	.005	.000	.000	.001	.000	.000	.001	.030	.119	.000	.000	.000	.359
2	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.344	.055	.053	.000	.000	.018
3	.000	.000		.000	.001	.002	.003	.001	.000	.000	.000	.000	.000	.000	.289	.256	.045	.002	.000	.430
4	.001	.000	.000		.011	.000	.000	.172	.000	.000	.000	.000	.000	.000	.472	.436	.400	.141	.145	.466
5	.003	.000	.001	.011		.000	.000	.026	.055	.007	.013	.023	.023	.000	.011	.034	.181	.001	.000	.063
6	.005	.000	.002	.000	.000		.000	.001	.013	.010	.003	.009	.012	.014	.229	.270	.130	.005	.002	.236
7	.318	.000	.003	.000	.000	.000		.006	.002	.025	.001	.172	.039	.003	.062	.070	.006	.022	.021	.181
8	.005	.000	.001	.172	.026	.001	.006		.009	.000	.003	.037	.005	.001	.344	.404	.002	.000	.000	.000
9	.000	.000	.000	.000	.055	.013	.002	.009		.035	.010	.000	.014	.031	.371	.500	.415	.000	.012	.014
10	.000	.000	.000	.000	.007	.010	.025	.000	.035		.000	.000	.000	.000	.007	.076	.065	.000	.000	.014
11	.001	.000	.000	.000	.013	.003	.001	.003	.010	.000		.009	.000	.000	.339	.046	.246	.012	.017	.020
12	.000	.000	.000	.000	.023	.009	.172	.037	.000	.000	.009		.000	.000	.027	.106	.001	.008	.014	.008
13	.000	.000	.000	.000	.023	.012	.039	.005	.014	.000	.000	.000		.000	.063	.252	.018	.001	.042	.005
14	.001	.000	.000	.000	.000	.014	.003	.001	.031	.000	.000	.000	.000		.349	.077	.204	.000	.000	.007
15	.030	.344	.289	.472	.011	.229	.062	.344	.371	.007	.339	.027	.063	.349		.000	.000	.108	.005	.070
16	.119	.055	.256	.436	.034	.270	.070	.404	.500	.076	.046	.106	.252	.077	.000		.000	.251	.034	.032
17	.000	.053	.045	.400	.181	.130	.006	.002	.415	.065	.246	.001	.018	.204	.000	.000		.264	.004	.315
18	.000	.000	.002	.141	.001	.005	.022	.000	.000	.000	.012	.008	.001	.000	.108	.251	.264		.000	.003
19	.000	.000	.000	.145	.000	.002	.021	.000	.012	.000	.017	.014	.042	.000	.005	.034	.004	.000		.019
20	.359	.018	.430	.466	.063	.236	.181	.000	.014	.014	.020	.008	.005	.007	.070	.032	.315	.003	.019	

Appendix – C

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.728
Bartlett's Test of Sphericity	Approx. Chi-Square	1455.116
	df	190
	Sig.	.000

KMO and Bartlett's Test for Humane Sustainability

FACTORS AFFECTING PERCEIVED ECONOMIC GROWTH OF KHYBER PAKHTUNKHWA-PAKISTAN: A COMPARATIVE STUDY OF FORMAL AND INFORMAL USERS

Muhammad Imranullah[1] and Umar Farooq[2]

Abstract

This comparative study finds the impact of perceived political, cultural, religious and economic factors on the perceived economic growth of Khyber Pakhtunkhwa, in the users of formal and informal financial systems. A questionnaire was sent to 500 respondents selected as sample for the target population. Out of 500, 369 responded to the questionnaire. After scrutiny, 309 were found valid. The outcome of the study suggested a very strong strategic role of formal and informal financial institutions in economic growth of the province . In this study, users of formal system showed a significant impact of perceived political stability, perceived cultural stability , perceived religious stability and perceived economic growth on the economic growth of the province. In informal financial system users, perceived economic stability, perceived political stability and perceived economic growth has significant impact on the economic growth, where perceived religious stability has insignificant impact on economic growth. Difference between Perceived economic stability, Perceived political factors, perceived religious factors, and perceived cultural factors also found insignificant across the users of formal and informal financial systems. However, the combination of the results were also associated with present political, cultural, religious and economic factors and the assumed results were debated with more implications at KP province.

Keywords: Economic, Growth, Financial System, Political Stability, Religious Factors.

JEL Classification: E000

Introduction

The neighboring countries of Pakistan are experiencing economic slowdown, but the war affected Khyber Pakhtunkhwa is badly affected and experiencing the worst economic meltdown. Khyber Pakhtunkhwa is the smallest province geographically among the four provinces of the country, but the third largest province in terms of contribution to gross domestic product (GDP). According to the

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Economic Survey of Pakistan, the Khyber Pakhtunkhwa province share to the GDP is 13% against the total population of 14.69 % of the total population of Pakistan. According to survey reports, the current annual economic growth in Khyber Pakhtunkhwa province has been recorded at 4.5 %. Total Remittances from overseas contribute to 5% of GDP and the poverty rate is approximately 39%.

The economic indicators in terms of banking industry of Pakistan has shown a remarkable growth in terms of assets base and total deposits doubling its size since 2008 but the ratio of Gross Domestic Product (GDP) to private sector credit have been on the decline, lending to private sector fell from 22 percent in 2009 to a low 14.7 percent in 2014. So, the economic factors in the area of banking services in Pakistan recorded a declining trend in total. Astonishingly, the agricultural sector which is the backbone of the economy and contributed 21 percent to the GDP and constitute 60 % of the total labor force, has just secured 6 percent of the total bank financing. This lopsided relationship has led to the decline of the agriculture sector in the country in general and Khyber Pakhtunkhwa in particular. On the other hand the private business sector in Pakistan has been availing 40 percent bank credit with major portion being taken by large business entities in the country and the statistics shows startling 0.4 percent large subscribers availing 65 percent of bank credit to the private sector.

The above situation shows an economic crunch in the region. Thus, it is essential to find out the factors that cause economic slowdown in order to improve the economic situation in the province. The investigators defined several factors that are responsible for the poor economic circumstances (Abadie, 2006; Easterly, 2001; Ali 2010; Barro, & McCleary, 2003). However, limited information is available about the reasons that are correlated with economic crash in Khyber Pakhtunkhwa province of Pakistan. Thus, the current study focused on exploring the factors in users of informal and formal financial system that help the economic development of the Khyber Pakhtunkhwa.

The current study also attempt to provide insight into the volume and dynamics of informal finance in the economy and to raise awareness in the stakeholders linked with informal and formal financial system. The current worse condition of economy in the country in general and in Khyber Pakhtunkhwa in particular substantiates the need for starting new research efforts to clarify the extended problems into the political, religious, cultural and economic factors into the intimate structure of formal and informal economies and suggestions for its resolute solutions.

The study aims to support the process of decision making by explaining the impact of factors affecting the economy of Khyber Pakhtunkhwa province and to measure the differences between users of formal and informal financial systems in terms of its supportive or competitive nature. The study will be supportive in recommending feasible options to the economic problem of Khyber Pakhtunkhwa province by analyzing the impact of political, religious, cultural and economic factors recorded by formal and informal financial systems.

Literature Review

Informal and Formal Financial Markets in Pakistan

The history of formal financial institutions like banks, cooperative societies, and insurance companies can be traced back to the British colonial period. On the other hand, informal finance markets have an extended history long before the existence of formal markets and a strong and widespread existence in much bigger parts of the country. Part of transactions in informal markets, particularly in urban parts, can be traced to the 'black economy', undocumented and hidden in order to evade taxes and statutory regulations. This is especially true for some of the self-employed individuals and groups involved with underground economic activities and proceedings. One of the premier State sector institutions namely, Pakistan Institute for Development Economist (PIDE) in its reports (PIDE, 1998,2003) found that formal economy has been way behind the informal one in terms of reach and magnitude of the total economy. The proportionate difference between the two has been estimated to be towering figure of 54.5 percent in 1998 from just 20 per cent in 1973 of the GDP. The inclining trend ceases to exist in the year 2002 to 37.25. Tax evasion trends by the stakeholders recorded similar patterns in the said period.

Ali and Qasim (2012) argued that access to formal financial institutions and its products are greatly hindered in the developing countries with multi-faceted and diverse reasons. The estimated magnitude is around 2.5 billion people which amounts to roughly 33 On the contrary, many studies have concluded that the root cause of social distortion and poverty has been the financial exclusion (Khandkher,2005; Karlan & ZInman, 2009; Banerjee, Duflo, Glennerster, & Kinnan, 2015; & Levine & Beck, 2002). Those researchers were of the vew that separation of formal and informal financial activities have brought financial disasters to the stakeholders. The countries, which develop their formal financial institutions have given way to the economic development on long-term basis and avoided economic issues.

It is interesting to note the modern technological advancements have automatically boosted the efforts of financial inclusion in many parts of the globe. For example, many online financial products by financial institutions have been offered through mobile technology and burdensome regulatory conditions have given way to more relaxed and open regulations. Noticeably the mobile technology is used across the board by all sections of the society and discrimination is not observed at any level in the context of formal and informal financial subscribers.

Table 1
Usage of financial products from the formal financial institutions

	Pakistan (%)	India (%)	South Asia (%)	East Asia (%)
All Adults	10.3	35.2	33.0	54.9
Male Adults	17.3	43.7	26.7	57.6
Female Adults	3.0	26.9	25.0	52.3
Adults living in Rural Areas	7.2	33.1	30.8	49.5
Adults living in Urban Areas	15.4	40.9	39.7	70.8

Source: World Bank Findex 2011

The above data sufficiently shows that Pakistan is lagging way behind its Eastern and Southern competitors when it comes to the usage of financial products from the formal financial institutions. A lot need to be done in terms of financial inclusion in order to reduce the gap between usage of products and services of formal and informal financial system in Pakistan.

Ayyagari, Demirguc-kunt, and Maksimovic (2010) prove from the available that Chinese economy is a counterexample of finance and growth in the context of discussion on informal economy and its role in economic development. The banking system at the time was found quite weak in China. The study however, noted that the Chinese economy is growing at a very fast pace and safely one can conclude that it is one of the fastest growing economies of the world and the results of the study suggested that although its faults in financing from the financial system are strongly connected with faster firm growth while the alternative channel is not the fund raising. They incorporated a mixed model; their outcomes found that formal financial system has no evidence over the results arise for the selection of firms that have access to this.

Qian, Allen and Qian (2005) also had a study in China by getting survey responses from 17 corporate entrepreneurs and executives from the Zhejiang and Jiangsu Provinces in China. They suggested that the non-availability of formal financial services in the vicinity tends to give opening to a more efficient alternative, the informal channels such as those based on goodwill and interactions to support the growth of the private sector.

Ngalawa and Viegi (2013) selected different sectors to evaluate the relationship of informal and formal financial markets and the role they play in the economic growth of developing economies which are a mixed blend of developed and developing market economies. An extensive impact of informal sector in support with formal sector is associated with the economic growth and its development but its contributions to optimize the GDP growth cultivated more effectively in the

developing countries (Ayyagari, Demirguc-Kunt, & Maksimovic, 2010). In Pakistan informal sector facilitates around 72.6% population in this sector of the economy in spite of people working in agricultural sector. The scope of acceptability of this sector has been realized in rural and urban areas. Meanwhile, the formal sector revealed its dignity and an impressive growth 27.4% during 2015 has found from 26.4% in 2014 whereas; informal growth in 2015 has diminished at 1.35%.

Alesina and Perotti (1996) conducted a detailed study in 113 economies across the globe covering a period of 1950-1982. According to their findings countries having volatile political systems and frequent government changes are more exposed to economic calamities and GDP growth has been found at quite lower ebb. Pin (2009 in his study observed that significantly lower GDP in different countries have been found to be having relatively lower political stability. Alesina and Perotti (1996) suggested that national and international investment is also subjected to the presence of conducive political environment in a country which brings in its wake the economic development thereby reducing the risk factor for the investor. Political upheaval constitutes a major component in the overall fabric of risk management in international direct investment. The strength of the investment regulations can only be achieved when there will be political stability in a country and rule of law will get flourish in case of consistency in governance actions. In countries, where there is political stability, will lead to faulty policy making and discourage foreign and local direct investments.

Aisen and Veiga (2006) explained lack of political stability increases inflationary trends in a country. Wealth is hoarded in few hands and the benefits of social justice and social comforts are not widespread in such societies. Muller (1985) commented on such state of affairs that, "It seems believable to expect that in societies with high inequality, where the distribution or scope of dissatisfaction is seemingly widespread; discontent is more likely to be mobilized somehow, than in societies with low inequality".

Cheibub, Przeworski, Limongi Neto, and Alvarez (1996) observed some exciting patterns in economic growth arising due to intrusion of political institutions in developing, poor and developed countries. The countries where the democratic norm of Government was on strong footing exhibited good economic growth as compared to countries where the helm of affairs was led by dictatorial individuals and can be termed as dictatorial form of Government.

Aisen and Veiga (2013) in their study recommended that political instability badly hamper the economic growth in any country. They suggested that political instability affects the decision making of the policy makers and they tend to plan for shorter terms for political gains. According to the authors frequent changes in the cabinet also affect policy making which affects macroeconomic performance of the economy. They further elaborated that countries with political instability have lower Gross Domestic Product (GDP) growth per capita than countries which had higher and consistent political stability.

Sule, Roubini, and Swagel (1996) also conducted a study regarding political instability and its impact on per capita GDP growth. They comprehensively selected 113 countries across the globe and analyzed their respective economies from 1950 to 1983. It was observed in the study by them that the South American country, Argentina was among the top 20 economies of the world in the decade of 1950's and was much stronger at that time than the Japanese economy.

Weingast (1995) opined that a stable Political system facilitates and safeguard contract between different entities and limits the power of the state to confiscate property. When political system gets proper breathing space, they tend to be strengthened against all external and internal threats and develop the power of resistance. Strong institutions are difficult to bypass by individuals in times of turbulence and chaos. Political stability tends to encourage entrepreneurial growth and provides conducive environment for economy to grow. Four aspects of political instability were discussed.

Okafor (2017) explored the main factors behind instability in Western African states. His research found that terrorism, corruption, bad governance, unemployment among youth, social unrest and lease of natural resources were the leading factors that bring political instability among the western African countries. These factors had negative impact of economic development of those countries.

Joshi (2017) elaborated that Indian economic decision choices have been shaped by socio, cultural and political experiences of the decision makers. It was also influenced by the external political developments in the region. According to author, India has a very rich history of political and economic engagement and tolerance in the world. It helped them make good political decisions, which has good impact on the economic development.

The multiple reasons responsible for the economic backwardness are sufficiently detailed by researchers (Abadie, 2006; Barro, & McCleary, 2003). The political, religious, cultural and economic factors are concluded by researchers to have significant impact on the economic development however, there are some potential pitfalls on the existing understanding of the relationship between these factors and economic development. Firstly, studies conducted in this arena are based on time series or longitudinal data which do not capture people perception. Secondly, the studies conducted in foreign countries does not capture the Pakistan and especially the KP perspective. Thus, the current study aims to investigate the difference in the impact of cultural, religious, political and economic factors on the economic development in Khyber Pakhtunkhwa in the users of formal and informal financial systems.

Hypotheses of the Study

Hypotheses are statements subjected to proper exploration and research. The following hypotheses have been tested as a testable prediction for the observed phenomenon in this study.

As the current study is a mixed blend of qualitative and quantitative research methodologies, the research questions have been supplemented by hypothesis as part of compliance to the requirements of quantitative study.

The following hypotheses have been tested during the course of this study:

H_1: There is a significant difference in perceived role of political, cultural, religious and economic factors between the users of formal and informal financial systems.

H_2: There is a significant difference in perceived economic growth between the users of formal and informal financial systems.

Undergoing a rigorous search for finding answers to the above has paved the way to suggest appropriate policy recommendations aiming at problem resolution in the arena.
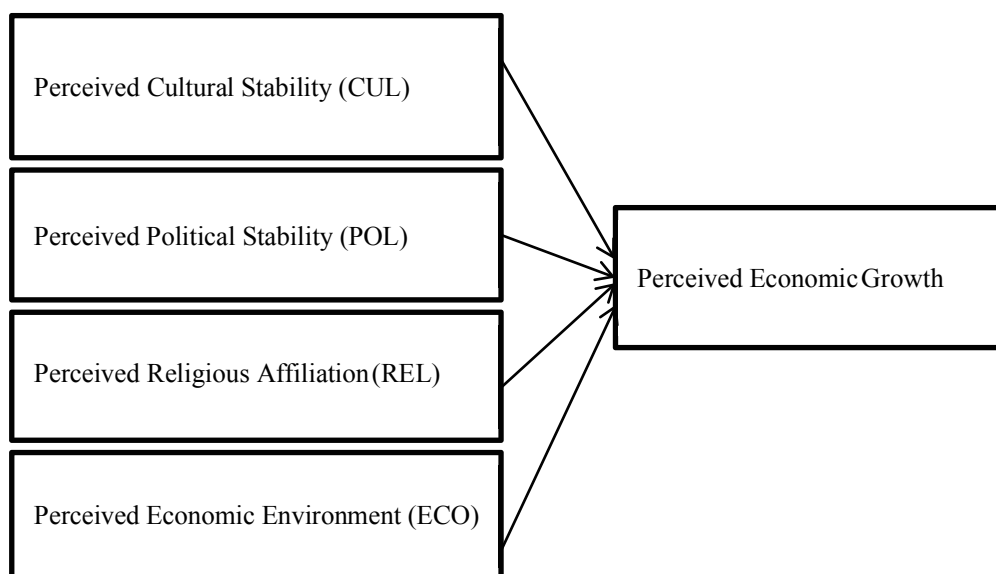
Conceptual Framework

Figure 1: Conceptual Framework

Research Methodology

Population and Sample of the Study

The population for this research study are managers who are money dealers and lenders in private sectors, Small & Medium Enterprises (SME's) and scheduled commercial banks in public and private sector in the Province of Khyber Pakhtunkhwa. Five hundred (500) users (subscribers) have been selected from both informal and formal financial sectors as a sample. Out if which 369 responded and a total of three hundred and nine were found valid therefore the response rate came to 61.8 %. Sekaran (2001) recommended a sample between 200 to 500 as acceptable range for conducting perceptual research studies. Keeping above characteristics of both approaches and study objectives in mind, snowball sampling has been used during the proceedings of this research study for collecting responses from users of informal financial institutions while convenience sampling method has been used for collecting responses from users of formal financial system. So snowball sampling and convenience sampling methods have been used during the course of the present research.

Time frame of the Research

Present study is not reviewing the post and pre situation therefore present research is cross-sectional research as there is no need to collect data at more than one point of time. The researcher collected the data within a span of 3 months starting from March, 2017 and completed in May, 2017.

Data Analysis Techniques

To answer the research questions of the study and assess the validity and reliability of the data and to substantiate the hypotheses of the study, different statistical analysis techniques have been utilized by the researcher in the present study includes descriptive statistics, Factor analysis and Structural Equation Modeling etc.

Data Analysis and Results

Evaluating Structural Model

In order to evaluate the relationship between the hypothetical constructs in the study, structural model are developed (Gotz et al., 2010). Coefficient of determination is used and is the essential criterion for assessment of the structural model (Henseler et al., 2009). The coefficient of determination or R square shows how much change in the dependent variable can be accounted to the independent variable. It is recommended that R^2 must be at least .10 in order for the latent construct to be considered acceptable (Falk & Miller, 1992). R^2 values of .67,.33 and.19 indicate substantial, moderate and weak effects (Chin, 1998b).
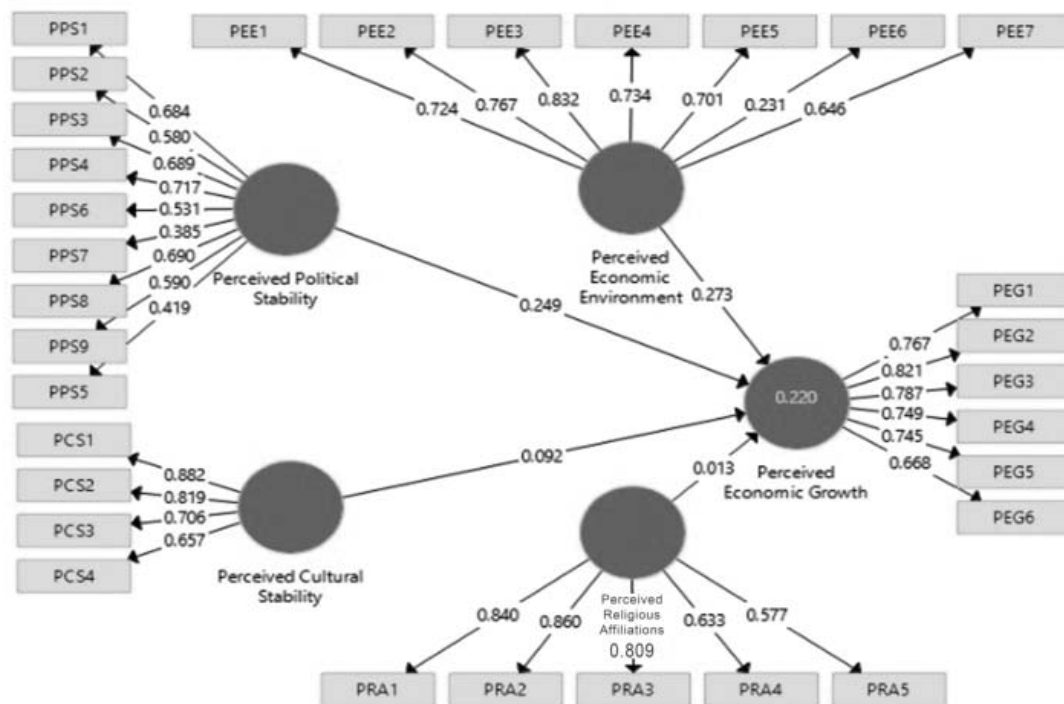
Figure 2: Initial Model with Item Loading

The results from initial model analysis in SMART-PLS showed that all factors has good Cronbach's Alpha value and Composite Reliability. However, the AVE values for Perceived Economic Growth and Perceived Political Stability were below the suggested value of .50. Analysing factor loadings for these two factors revealed a number of items having loadings below the recommended .70. Stepwise each item with lowest loading was removed and model was re-run to evaluate the reliability and validity values.

One Item (PEE6) having factor loading .231 was removed from Perceived Economic Growth, and the model was re-run. Having reevaluated the model with the removal of PEE6, the results showed acceptable AVE value. Five items (PPS2, PPS5, PPS6, PPS7, and PPS9) were removed from the factor Perceived Political Stability due to low factor loadings. After removal of the items acceptable value for Perceived Political Stability was obtained. The final model after removal of some items is shown in the following figure.

The factor loadings for each of the construct in the modified model are presented in the following table. Although some of the items still have loadings below .70. However, since acceptable values for Alpha, CR, and AVE were attained. The items weren't removed from further analysis.

The results of the Alpha and Composite Reliability are shown in the below figure. The alpha of the constructs in the present study range between .762 and .854 while CR values ranged between .841 and .890. Results indicate that reliability of all the constructs is well above .70 which indicates good reliability is attained. Descriptive for scale item if deleted were also analyzed to check if there is a substantial increase in reliability upon deletion of an item. It was found that removing an item would not improve the construct reliability.
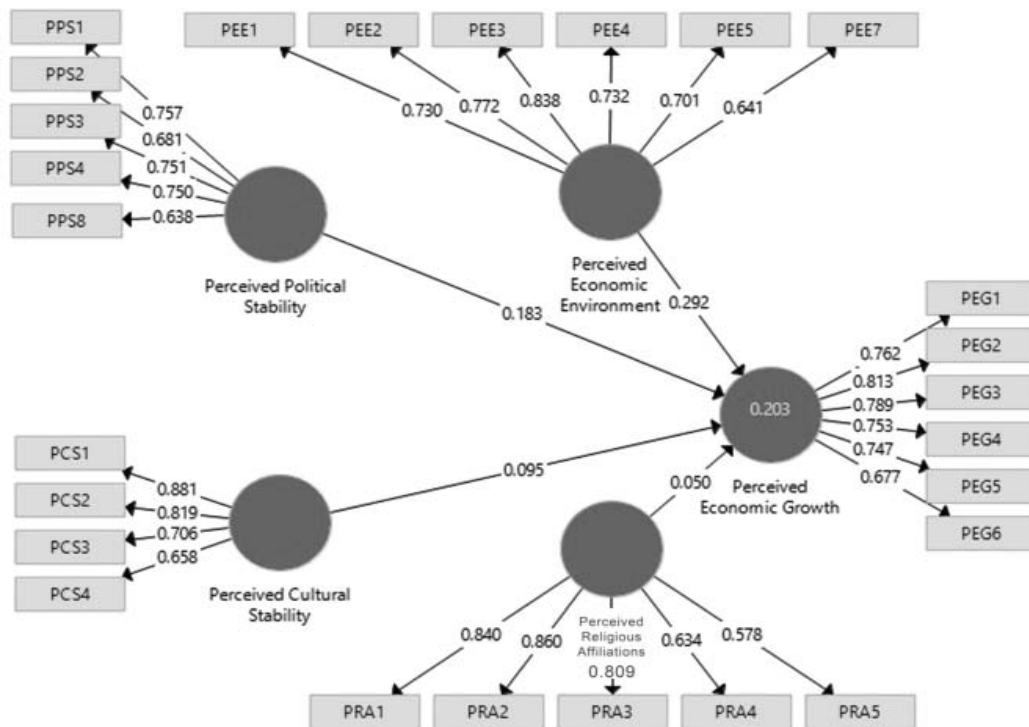
Figure 3: Alpha and Composite Reliability

Table 2
Reliability analysis of the constructs

	Cronbach's Alpha	**Composite Reliability**
Perceived Cultural Stability	0.788	0.853
Perceived Economic Environment	0.834	0.877
Perceived Economic Growth	0.854	0.890
Perceived Political Stability	0.762	0.841
Perceived Religious Affiliation	0.821	0.865

The comparison of significance of the impact of the factors namely perceived cultural stability, perceived economic environment, perceived political stability, and perceived religious affiliation on perceived economic growth revealed that in the overall complete model perceived economic environment and perceived political stability had a significant impact on perceived economic growth while the impact of perceived cultural stability and perceived religious affiliation had an insignificant impact. In comparison to the overall model in the users of formal financial system only perceived economic environment had a significant impact on perceived economic growth while in the users of informal financial system, the results show that users show that the perceived economic growth is significantly influenced by perceived cultural stability, perceived economic environment, and perceived political stability. The comparisons are summarized in the following table.

Table 3
Model Significance comparison between FFS and IFS

	Formal	**Informal**	**Overall**
Perceived Cultural Stability -> Perceived Economic Growth	.966	.001	0.217
Perceived Economic Environment -> Perceived Economic Growth	.009	.001	0.000
Perceived Political Stability -> Perceived Economic Growth	.421	.000	0.024
Perceived Religious Affiliation -> Perceived Economic Growth	.281	.393	0.528

Difference between Formal and Informal Financial System

In order to assess research question to evaluate whether there exist significant different in the perception of users of formal and informal financial system for perceived political stability, perceived economic environment, perceived cultural stability, perceived religious affiliation, and perceived economic growth.

The results show that there exist no significant difference (t = 1.049, p > .05) in perceived political stability between users of formal (M = 3.15, SD = .76) and informal financial systems (M = 3.05, SD = .75).

The results show that there exist no significant difference (t = .429, p > .05) in perceived economic environment between users of formal (M = 2.89, SD = .62) and informal financial systems (M = 2.85, SD = .91).

The results show that there exist no significant difference (t = -.548, p > .05) in perceived cultural stability between users of formal (M = 3.76, SD = .67) and informal financial systems (M = 3.81, SD = .76).

The results show that there exist no significant difference (t = .327, p > .05) in perceived religious affiliation between users of formal (M = 3.62, SD = .66) and informal financial systems (M = 3.59, SD = .88).

The results show that there exist significant difference (t = 3.348, p < .005) in perceived economic growth between users of formal (M = 3.47, SD = .60) and informal financial systems (M = 3.18, SD = .77). The perception of perceived economic growth is increasingly positive in the users of formal financial systems in comparison to the uses of informal financial system.

Discussion and Conclusion

This study's main objective is to contribute in the literature by covering the gaps like say, for instance, it is the first attempt to examine the perceived effect of different factors on economic growth particularly in the context of Pakistan. Overall the results for the hypothesis of the study reveals that there exist no significant difference in perceived political stability (t = 1.049, p > .05), perceived economic environment (t = .429, p > .05), perceived cultural stability (t = -.548, p > .05), perceived religious affiliation (t = .327, p > .05) across the users of formal and informal financial systems. Results of the present study support the inference of the past studies like say for instance; Aredo (1993) argue that informal financial sector operates in the environment where government involvement is negligible, it possess well organized and self-oriented mechanism which changes with the passage of changing the environment. Similarly, Pakistan is found to be a least financially inclusive country of the world, where determinants of financial inclusion stated as below the average of South Asian countries (Zulfiqar, Chaudhary, & Aslam, 2016), which represents the low level of involvement particularly of socio-economic determinants. Based on the given discussion hypothesis H_3 remains to stand with; due to the poor performance of the indicators pertinent to financial inclusion, the role of political, cultural, religious and economic factors in informal financial systems is the same as the informal financial system. Leading the argument in the special context of KP, during the completion this study scholar observed that KP province is very dynamic in nature because the surrounded

territory of KP consisting different geographic areas including tribal areas etc. where they have there some special set of political and religious affairs, on the other side urban areas have very organize and consistent setup for conducting business or religious concerns so in future in-depth study is more required to explore those factors in the context of said study.

Similarly, results reported a significant difference (t = 3.348, p < .005) in perceived economic growth across the users of formal and informal financial systems. According to McKernan, Pitt, and Moskowitz (2004), there is a large difference across the users (Male/Female) of financial and informal financial services. On the same side, the informal financial sector is considered to be a useful instrument of economic development for underprivileged areas of the country, while for urban areas the formal financial sector is most reliable (Karunagoda, 2007). Therefore, the study concluded that the results of the study are in the alignment of the previous studies. The reason behind that is a majority of the users are unaware to formal financial practices and belongs to rural areas that's why they adopt old traditional tactics for operating businesses which leads to the difference in perceived economic growth because of the users of the formal and informal financial system. In the context of KP, as stated earlier people belong to rural areas are much influenced or tied up with their traditions or course of actions as suggested by their ancestors. However, people of urban areas equipped or support their way of living by adopting contemporary approaches i.e. schools, formal financial or non-financial institutions etc. Therefore, the results of the study reveal the difference in economic growth across the formal and informal users of the financial system.

From the above-stated discussion, the conclusion can be drawn that majority of the results were supported by the previous studies (Zulfiqar, Chaudhary, & Aslam, 2016; Upreti, 2015; McKernan, Pitt, & Moskowitz, 2004), like to say for instance there is a significant impact of Perceived political stability, Perceived economic factors have been found on Perceived economic growth. Similarly, a significant difference in Perceived economic growth across the formal and informal users has also been revealed by the results.

On the other side, there is an insignificant influence (Ciobanu & Bahna, 2015) of Perceived cultural factors, Perceived religious factors have been accounted on Perceived economic growth. Difference between Perceived political stability, Perceived economic factors, perceived cultural factors, and perceived religious factors also found insignificant across the users of formal and informal financial systems. However, the blend of the results were also linked with present political, cultural, religious and economic factors and the said results were discussed with more implications at KP province, many of the results found satisfactory in compliance with reality and this was also the ultimate aim of the researcher to represent the true picture of the KP and proposed viable solutions for it.

Policy Recommandations

Since the previous one decade Pakistan and especially KP province faced drastic changes in political, cultural and religious environment that radically cause economic environment as well as KP economy on both formal and informal sector. Therefore, it is suggested that policy makers or practitioners should have to work out on the laws governing harmony in cultural and religious environment and as well as Govt. of KP should strive to make political environment less panic because the notion of change indeed change the perception of the people of KP. Once a strong bond between the variables like political, cultural, religious and economic environment is buildup the economy of KP will starts flourishing.

While looking toward the regression results there is a large magnitude effect exist by the perceived political, cultural, religious and economic environment on economy of KP in the context of informal rather than the formal financial system and same with the comparative results between the formal and informal financial system. Hence, it is recommended that Govt. should have to take the steps to channelize the informal setups in to the main stream of the economy by bringing industrial and taxation reforms so that the fruits from the formal financial system can be maximizes.

Recommandations for Further Research

First, the research study intended to focus on people perspective about formal and informal financial system, the future researcher can investigate the strategic orientation towards firm performance in formal and informal financial set up.

Secondly, the future researcher should take into consideration the possibility of including greater clientele in the data collection process. The future researcher should also concentrate on broadening the scope of the study by including institutions like 'not-for-profit' organizations. For data collection, apart from survey method, other data collection techniques shall also be relied upon.

Third, the present research study concentrated on only one Province; Khyber Pakhtunkhwa in this study with focus on big cities, the future researcher should include other provinces of Pakistan also along with concentration to get data from smaller cities of Pakistan to overcome this sort of limitation.

Fourth, the present study used positivistic approach for collection and analysis of data. This procedure has resulted in data collection through survey instrument only. The future researcher is suggested to focus on a more pragmatist approach to get hold of deep routed information regarding people perceptions about the financial systems.

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EXTENSION OF SOCIAL LEARNING THEORY FOR UNDERSTANDING THE PERCEPTION TOWARDS ABUSIVE BEHAVIOR: A CASE OF BANKING SECTOR IN PAKISTAN

Sahar Qabool[1] and Tariq Jalees[2]

Abstract

Abusive supervision has become a problematic issue across the world, which adversely effects employees' productivity, organizational commitment, and job satisfaction. The incidents of abusive supervision are more severe in service industry including the banking sector. Thus, the purpose of this study is to examine the effects of work-family conflict, supervisors' narcissism, job demand and subordinates neuroticism on abusive supervision. The conceptual framework for the study is based on past literature, Social Learning Theory and Stress and Strain Model. The questionnaire was adapted from the earlier developed scales and measures. The questionnaire was administered to the bank employees of Karachi, Pakistan. The valid sample size for this study was 387 with a response rate of 92%, selected non-randomly. Since the scales and measures were developed in other countries, therefore their reliability and validity were re-ascertained. Finally, the developed model was tested through Structural Equation Modeling (SEM). The study found that the work family conflict, job demand and supervisor's narcissism have a significant association with abusive supervision. Whereas subordinates' neuroticism has an insignificant effect on abusive supervision. This study was restricted to the banking sector of Karachi. Future studies may explore the effects of antecedents in other sectors. Effects of antecedents vary by demographic, which other studies may examine. Future studies may also measure the consequences of abusive supervision and mediating roles of gossip, emotional exhaustion, emotional labor and burnout.

Keywords: Abusive Supervision, Work-Family Conflict, Job Demand, Supervisors' Narcissism, Subordinates' Neuroticism.

JEL Classification: G210

Introduction

Many employees at workplace perceive that they are victim of abusive and deviant behaviors,

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which is also known as the darker side of leadership (Tepper, 2007; Tepper, Simon, & Park, 2017). Tepper (2000) coined the term abusive supervision. It refers to subordinates' perception about their supervisors hostile (verbal & nonverbal) behaviors (Barnes, Lucianetti, Bhave, & Christian, 2015). Verbal abuse is inclusive of "forcefully criticizing, insulting, or denouncing another person" (Tepper, 2007), in a hostile tone. Verbal abuse negatively affects victim of abusive behavior (Tepper, Simon, & Park, 2017). On the contrary in non verbal abuse, supervisors belittle others through gestures or body language which is inlcusive of "rolling eyes, smirking, whispering, ignoring or violating personal space" (Tepper, Simon, & Park, 2017).

Abusive supervision is negatively associated with employees' performance, organizational commitment, and job satisfaction (Aryee, Chen, Sun, & Debrah, 2007). Past studies have documented that abusive supervision positively effects employees' turnover, absenteeism rates, dysfunctional resistance, organizational conflicts, and deviant behaviors (Henle & Gross, 2014; Vogel et al., 2015).

Earlier studies have examined the effects of abusive supervision on outcome performance, fallout effects outside organizations, and mediating roles of abusive supervision on organizational performance related constructs. Past studies have also measured its effects on organizational citizenship behavior (Rafferty & Restubog, 2011), job performance (Shao, Li, Mawritz, & Bagger, 2015), employees' creativity (Tepper et al., 2017), employees' turnover (Palanski, Avey, & Jiraporn, 2014). Studies on fall out effects (outside organizations) have documented that abusive supervision positively influences work-life-family conflict (Demsky, Ellis, & Fritz, 2014), employees wellbeing (Wu & Cao, 2015), condition of health (Che, Zhou, Kessler, & Spector, 2017), and family satisfaction (Wu & Cao, 2015). Studies have also found ingratiation and surface acting moderate abusive supervision and its consequences. It has also been documented that job mobility (Tepper, 2000), the meaning of work (Harris, Kacmar, & Zivnuska, 2007), the norm of reciprocity (Hoobler & Brass, 2006), and organization based self-esteem (Ferris, Brown, & Heller, 2009) moderate abusive supervision and its outcomes.

The literature review suggest that more studies are available on the consequences of abusive supervision in comparison to antecedents towards abusive supervision (Park, 2012; Tepper et al., 2017; Zhang & Bednall, 2016). In view of this gap, the study has extended social learning theory and stress-strain model to measure the effect of work-family conflict, job demand, supervisor's narcissism and subordinates' neuroticism on abusive supervision.

According to Social Learning Theory supervisors' aggressive behaviors depend on their personal traits and work-related stressors. Therefore, the developed conceptual framework has derived supervisors' narcissism and subordinates neuroticism (Park, 2012) from social learning theory. On the other hand, stress and strain model suggests that the outcomes of stress are work-family conflict and job demand. Therefore, the developed conceptual framework has derived these variables from stress strain model.

Based on social learning theory and stress strain model and literature support discussed in the following sections a conceptual framework has been developed which is presented in figure 1.
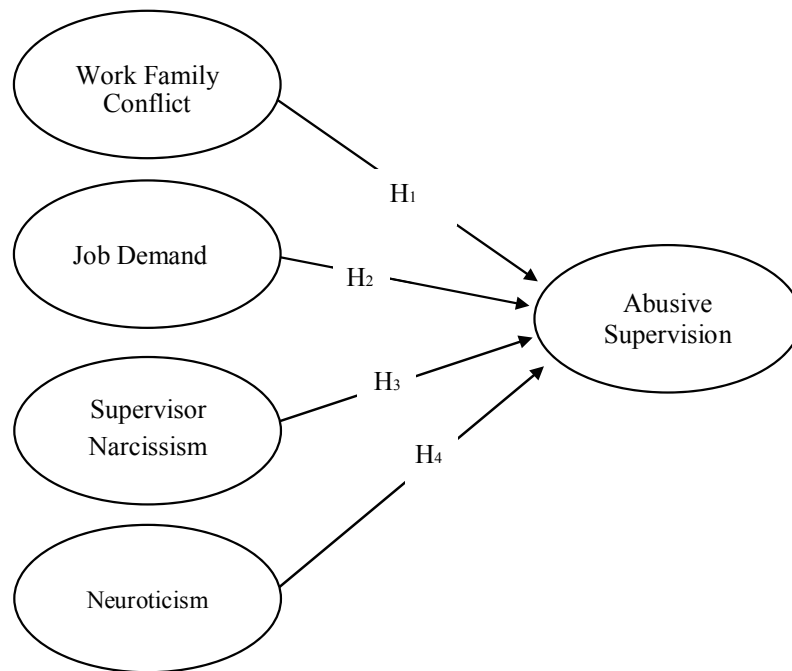
Figure 1: Conceptual Framework

Work-Family Conflict and Abusive Supervision

Factors related to workplace and non-workplace effects employees' attitudes and behaviors (Che et al., 2017). Family work conflict arises when individuals get exhausted due to high work-demands (resource drain). Consequently, it leads to depletion of resources for families. These factors stimulate abusive behavior (Liang, Liang, & Sun, 2016). Past studies on work-family conflict and abusive supervision found that work family conflict promotes distress and anxiety due to which employees/supervisors adopt obnoxious, insulting and offensive behaviors towards others/ subordinates (Che et al., 2017; Wu & Cao, 2015). Barn, et al. (2015) argue that when individuals are unable to recover from stress and negative effects of work, it effects their self-control mechanism and results in abusive behavior. Contrarily Park (2012) found that work-family conflict is a weaker predictor of abusive supervision as compared to supervisors' narcissism, subordinates' neuroticism and boss abusive behavior (Park, 2012).

Supervisors/employees at the workplace have to deal with deadlines. Due to excessive workload, and other work's demands they have lesser resources including time, attention and energy. This results in accumulated stress, frustrations and fatigues, which are transmitted to their family members and subordinates/employees in the form of deviant and aggressive behaviors (Hambrick, Finkelstein, & Mooney, 2005).

Studies on work family conflict suggest that deviant behaviors, strain and time based conflicts promote abusive supervision. Time-based conflicts arise when individuals spend too much time at the workplace and lesser at home with their families. Strain and behavior conflicts arise when individuals transmit families related stresses, frustrations and fatigues to the workplace and vice versa (Dollard & McTernan, 2011). All these factors individually and collectively promote abusive supervision.
H_1: Work-family conflict has a positive effect on abusive supervision.

Job Demand and Abusive Supervision

According to Schaufeli (2004), job demand is psychological, social or physical stress on employees/supervisors, which have specific psychological or physical cost. High job demand not only put excessive stress on employees and supervisors, but it leads to abusive and deviant behaviors (Bakker, Demerouti, & Dollard, 2008; Schaufeli & Bakker, 2004).

Individuals have a built-in self-control mechanism (Muraven & Baumeister, 2000), which controls their impulsive and negative behaviors. Job demand significantly effects this mechanism. Supervisors with low self-control are more offensive and abusive to others as compared to those who have a high self-control mechanism (Baumeister, Vohs, Nathan DeWall, & Zhang, 2007).

Job demand effects individuals physically and psychologically. The former is related to workload and a high work-pace. The latter is about task complexity, and role ambiguity (DeWall, Baumeister, Chester, & Bushman, 2016). Studies have concluded that both physical and psychological stress individually, and as a whole lead to mental strain, and burnout due to which individuals become more abusive and aggressive (Frieder, Hochwarter, & DeOrtentiis, 2015; Mawritz, Folger, & Latham, 2014). Thus individuals and supervisors relieve their job-induced stress to others by bullying and adopting insulting and abusive behaviors. This behavior is generally directed towards those employees who are performing poorly and below expectation (Tepper et al., 2017).
H_2: Job demand has a positive effect on abusive supervision.

Supervisors' Narcissism and Abusive Supervision

Individuals with a high level of narcissism have a higher tendency to love themselves and perceive that they are superior to others (Baumeister, 2002). They are highly energetic, extrovert, and have high self-esteem. They, therefore, expect others to have zeal of self-accomplishment and

success (Judge, LePine, & Rich, 2006). Being charismatic by nature they in the short-term may increase motivation and performance level of their subordinates but in the long run their attitudes and behaviors may adversely affect the performance and commitment of their subordinates (Baumeister, 2002). Narcissists are highly focused on achiehving their goals due to which they ignore the collective interest of organizations and others (Judge et al., 2006; Maynard, Brondolo, Connelly, & Sauer, 2015).

Narcissists, besides being abusive and uncooperative, are high achievers. Therefore, they are suitable for those jobs that require individual talents and abilities (Morf & Rhodewalt, 2001). Judge et al. (2006) have documented a positive association between narcissism and abusiveness. The study concluded that on receiving negative feedback, narcisist become more abusive and hostile to others. Similarly, others have also documented that narcissists are not receptive to others' feedbacks and suggestions. It has been found that many narcissists make sexual advancement towards female employees. When female employees do not reciprocate to the sexual advancements of narcissists, they become personal and adopt deviant behavior (Maynard et al., 2015; Morf & Rhodewalt, 2001).

Narcissists are although are generally highly productive but due to their retaliating, bullying and abusive behavior they at times become counterproductive. Additionally, due to their short temper which they show very frequently hurts others feelings (Judge et al., 2006). They very often misguide and undermine others. They perceive that undermining others will give them more projection (Maynard et al., 2015).

H_3: Supervisors' narcissism has a positive effect on abusive supervision.

Subordinates' Neuroticism and Abusive Supervision

Neuroticism refers "to a dispositional tendency towards negative emotionality such that individuals high in neuroticism show worrying and insecure, self-conscious, and temperamental behaviors" (Park, 2012). Neuroticism from stress-strain perspective is considered as an interpersonal conflict between stress and psychological strain (Tepper, 2007). Thus individuals with a high level of neuroticism generally take stressful incidents more severely as compared to others (Webster, Brough, & Daly, 2016).

Neuroticism has two mechanisms which are perception mechanism and stressor creating mechanism. They both are closely associated with abusive supervision (Park, 2012). In the case of perception mechanism, individuals appraise stressful events based on their levels of neuroticism (Roberton, Daffern, & Bucks, 2012). Neurotic employees have tendency to compare their perceived stress with others. This comparision aggravtes their suffering and stress level. All individuals have different threshold levels of neuroticism (Webster et al., 2016). Highly neurotic individuals take stressful events more seriously. They report these events more often as compared to others. Thus they are also more vulnerable to conflicts (Baumeister, 2002). Additionally, they recall past stressful events frequently, which further increase their depression level (Park, 2012).

A study on abusive supervision found that negative affectivity (feelings & emotions) is highly associated with self-perception of abuse (Tepper, Duffy, & Shaw, 2001). Others in this context have concluded that neuroticism is primary in nature, therefore, is more stable. While negative affectivity (Feelings & emotions) is secondary in nature and is more closely associated with mood state (Bamberger & Bacharach, 2006). Perception mechanism of neuroticism is positively associated with abusive supervision. Individuals with high perception mechanism feel the effect of abusive supervision and stressful events more severely (Tepper, 2007).The second mechanism of neuroticism is stressor creation mechanism which effects individuals' perception differently than perception mechanism discussed above. In the case of stressor creation mechanism individuals who are victims of abusive behavior reacts more negatively as compared to others (McLaughlin, Hatzenbuehler, & Hilt, 2009).

Studies on children found that children in stress creation mechanism of neuroticism feel more insecure, are highly anxious, and have low self-confidence (Tam & Zhang, 2012). In the context of the workplace, studies found that individuals who are emotionally unstable will face more bullying from others including supervisors (Weaver, 2000). Victims of abusive supervision are generally less out-spoken and less extravagant, and they portray themselves as submissive of provocative victims. Since they take bullying and abuses without retardation, it encourages others and supervisors to be more abusive to them (McLaughlin et al., 2009). Thus both perception creation and stressor creation mechanisms of neuroticism discussed above positively influence abusive supervision.

H_4: Subordinates' Neuroticism has a positive effect on abusive supervision.

Methodology

Sample

The target population for this study is employees working in the banking sector of Karachi. The sample size for this study is 387 with a non-response rate of 15%. The authors personally visited the selected local banks and collected the data. Due to non-availability of sample frame, we have used non-random sampling technique. The targeted respondents were middle and upper-level management. Of the total respondents 26% were of AVP level, 32%, were of manager level, and 42% were of assistant manager level. Male respondents were 75%, and females were 35%. In terms of marital status, 55% were married, and 45% were single. About 35% of respondents had master degrees, 55% had a bachelor degree, and the rest 15% had at least intermediate level of education.

Variables and Instruments

Abusive Supervision Scale

Abusive supervision refers to the extent to which workers in the organization feel that their bosses are engaged in forceful behavior with them, excluding physical violence (Tepper, 2000). This

study has measured employees' perception of supervisor abusive behavior. The scale used in the study was adapted from the scale and measure developed by Tepper (2000). This part of the questionnaire has five items all based on five points Likert scale. The reported reliability of the scale ranged from 0.80 to 0.89(Park, 2012; Judge et al., 2006). A high mean score reflects a higher perception towards the supervisor's abusive supervision.

Work-Family Conflict Scale

Family work conflict generally arises when individuals due to high work-demands get exhausted (resource drain) and they do not have sufficient time for their families. These factors thus play a significant role in promoting abusive supervision (Liang, Liang, & Sun, 2016). This study has measured employees' perception towards work-family conflict. The scale used in the study was adapted from the scale and measure developed by Netemeyer, Boles, & McMurrian (996). This part of the questionnaire has five items all based on five points Likert scale. The reported reliability of the scale ranged from 0.75 to 0.87(Park, 2012; Hambrick, Finkelstein, & Mooney, 2005). A high mean score reflects a higher perception towards work-family conflict.

Job Demand Scale

According to Schaufeli (2004), job demand is psychological, social or physical stress on employees/supervisors which have specific psychological or physical costs. High job demand not only put excessive stress on employees/supervisors, but it leads to abusive and deviant behaviors (Bakker, Demerouti, & Dollard, 2008; Schaufeli & Bakker, 2004). This study has measured employees' perception towards job demand. The scale used in the study was adapted from the scales and measures developed by Karasek Jr (1979). This part of the questionnaire has five items all based on five points Likert scale. The reported reliability of the scale ranged from 0.85 to 0.90 (Schaufeli, 2004; Karasek Jr, 1979). A high mean score reflects a higher perception towards job demand.

Supervisor's Narcissism Scale

Narcissist individuals are highly energetic, extrovert, have high self- esteem, and perceive themselves as superior to others. Consequently, they have a high expectation from others(Judge, LePine, & Rich, 2006). This study has measured employees' perception of their supervisor's narcissist behavior from the scales and measures developed by Ames, Rose, & Anderson (2006) . Its reported reliability in earlier studies ranged from 0.78 to 0.86 (Brightman, 1984; Meier & Semmer, 2013). A high mean score reflects a higher perception towards the supervisor's narcissism.

Subordinate Neuroticism

Neuroticism refers "to a dispositional tendency toward negative emotionality such that individuals high in neuroticism show worrying and insecure, self-conscious, and temperamental behaviors" (Park, 2012). This study has measured employees' perception of their subordinates' neurotic behavior from the scales and measures developed by Park (2012). Its reported reliability in earlier studies ranged from 0.75 to 86 (Tepper, Duffy, & Shaw, 2001; De Hoogh, & Den Hartog, 2009).

Structure of the Questionnaire

The questionnaire has two sections. Section one is related to demographics, and it is based on a nominal scale. Section two has five constructs, and each construct has five items adapted from the scale developed from earlier studies. It is based on five Point Likert Scale, one showing a low level of agreement and five showing a high level of agreement. Since English is the medium of communication in Pakistan's corporate world and public sector, therefore, the questionnaire was developed and administered in the English language.

Data Analysis

Initially, the shape of the distribution, reliability, and validity of the adapted instruments were assessed on the present data set. Subsequently, multi-stage SEM analysis was used for meeting the objectives. SEM analysis was carried out in two stages. In the first stage, CFA for all the constructs was conducted separately. In the second stage, CFA for hypothesized models was carried out. The fit indices used for SEM in this study are presented in Table 1 below.

Table 1
Fit Indices

	$\chi 2$	$\chi 2/df$	**CFI**	**AGFI**	**GFI**
Criteria	Low	< 5.0	> 0.9	> 0.9	> 0.95

Results and Analysis

Descriptive and Reliability Analysis

Descriptive analysis was carried out to measure the consistency (through Cronbach's Alpha) and univariate normality of the adapted constructs. Results are summarized in Table 2 below.

Table 2
Reliability, Skewness and Kurtosis Analysis

	Reliability (Cronbach's Alpha)	Mean	Std. Dev.	Skewness	Kurtosis
Abusive Supervision	0.794	3.63	1.23	-0.889	-0.580
Work-Family Conflict	0.883	3.66	1.12	-0.870	-0.470
Job Demand	0.81	3.92	1.07	-0.461	-0.832
Supervisors' Narcissism	0.741	3.96	1.06	-0.149	-0.913
Subordinates' Neuroticism	0.826	3.84	1.01	-0.491	0.636

The above analysis shows that the adapted constructs have acceptable internal consistencies as all the Cronbach's alpha values are greater than 0.70 (Leech, Barrett, & Morgan, 2014). Additionally, all Skewness and Kurtosis values ranged between ± 1.5, indicating that adopted constructs fulfill the requirements of univariate normality (Looney, 1995).

Bi-variate Correlation

Correlations analysis was used to measure the uniqueness and distinctiveness of the constructs. The results below are presented in Table 3 below.

Table 3
Correlations

Constructs	ABS	WFC	JD	SNRCSM	SNTM
Abusive Supervision	1				
Work-Family Conflict	0.70	1			
Job Demand	0.73	0.59	1		
Supervisors Narcissism	0.75	0.62	0.57	1	
Subordinates' Neuroticism	0.68	0.53	0.55	0.53	1

The results show that each pair of correlation ranges between (r=0.53 to r= 0.75). Since each pair of correlation ranged between 0.60 to 0.90 therefore, it is concluded all the adapted constructs are unique and distinct (Sekaran, 1999).

Confirmatory Factor Analysis

The SEM analysis adopted in this study is based on multi-stage analyses. Therefore, initially, CFA of all the constructs was carried out separately, and subsequently CFA of the hypothesized model.

Results relating to CFA of adapted constructs are presented in Table 4, below.

Table 4
CFA of Adapted Constructs

	χ^2	χ^2/df	**GFI**	**AGFI**	**CFI**
Abusive Supervision	31.618	3.104	.960	.962	.991
Work family Conflict	6.462	3.231	.991	.958	.995
Job Demand	15.509	7.754	.979	.997	.974
Supervisors' Narcissism	31.618	15.809	.960	.998	.963
Subordinates' Neuroticism	12.144	6.072	.985	.923	.981
Criteria	Low	< 5.0	> 0.90	> 0.9	> 0.95

In the above CFA analyses, each construct was treated as a unique model and was tested separated with all the indicator variables in each variable. Thus each model above had one latent variable and five indicator variables. The results show that most of the fit indices are with the prescribed limits, except χ^2/df values of job demand, supervisor's narcissism, and subordinates' neuroticism, which came within the limit when the overall model was tested.

Hypothesized Model

The hypotheses model fitted very well, and all the indices are within the prescribed criteria. The model is depicted in Figure 2 and Table 5 below.

Table 5
CFA of Hypothesized Model

	χ^2	χ^2/df	**GFI**	**AGFI**	**-CFI**
Hypothesised Model	144.440	2.534	.964	.961	.964
Criteria	Low	< 5.0	> .95	> 0.9	> 0.95
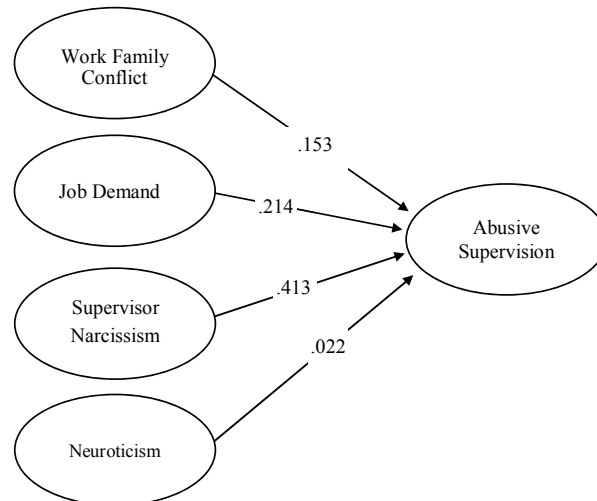
Figure 2: Hypothesized Model

Hypothesized Results

Of the four hypotheses, three were accepted, and one was rejected. The results derived from SEM output is presented in Table 7 below.

Table 6
Hypothesized Results

			SRW	S.E.	C.R.	P	Decision
Abusive Supervision	<---	Wrk_Fam_Conflct	.153	.061	2.503	.012	Accepted
Abusive Supervision	<---	Job Demand	.214	.084	2.532	.011	Accepted
Abusive Supervision	<---	Narcissism	.434	.105	4.311	.000	Accepted
Abusive Supervision	<---	Neuroticism	.022	.086	.255	.799	Rejected

Discussion

Of the four hypotheses, three were accepted, and one was rejected. The findings along with their relevance to earlier studies are discussed in the following sections.

Work-Family Conflict and Abusive Supervision

The study found work-family conflict has a positive effect on abusive supervision (refer to Table 7). Employees are affected by both workplace and non-workplace factors (Che et al., 2017). Work family conflict generally occurs when the demand for both work and family are high which consequently results in a resource drain (Liang et al., 2016). This conflict plays a vital role in stimulating abusive behavior (Che et al., 2017). Studies while validating the effect of work-family conflict and abusive supervision found that this conflict leads to distress and anxiety in supervisors. As a result, they adopt obnoxious, insulting and offensive behavior towards their subordinates (Che et al., 2017; Wu & Cao, 2015). Studies while validating the effects of work-life-family on abusive supervision concluded that work-family conflicts arise due to behaviors, strain and time-based conflicts. (Dollard & McTernan, 2011).

Job Demand and Abusive Supervision

The study found job demand has a positive and significant effect on abusive supervision (refer to Table 7). High job demands exert excessive pressure and burden on employees which makes their behavior hostile towards other employees (Bakker et al., 2008; Schaufeli & Bakker, 2004). Job demand has physical and psychological aspects. The former is quantifiable including workload and high work pace. The latter is related to task complexity, and role ambiguity (DeWall et al., 2016). Studies have found that both physical and psychological aspects individually, and collectively leads to mental strain and burnout which subsequently leads towards abusive and aggressive behaviors (Frieder et al., 2015; Mawritz et al., 2014).

Supervisors' Narcissism and Abusive Supervision

The study found Supervisors' narcissism has a positive and significant effect on abusive supervision (refer to Table 7). Narcissist people are energetic, extrovert and have high self-esteem. Consequently, they have high expectation from others in the context of self-accomplishment and success (Judge et al., 2006). Being charismatic they in the short term can increase the motivation and performance of their subordinates, but in the long run, their attitude and behaviors adversely affect their performance and commitment (Baumeister, 2002). Narcissists or so much pre-occupied in pursuance of their own goals that they ignore the collective interest of organizations and others (Judge et al., 2006; Maynard et al., 2015). Studies have found a positive association between narcissism and abusiveness and have concluded that narcissists have a high self-perception, and when they receive negative feedback from others, it hurts their egos and become abusive and hostile to them (Judge et al., 2006).

Subordinates' Neuroticism and Abusive Supervision

The study found that subordinate's neuroticism has an insignificant effect on abusive supervision (refer to Table 7). This finding is inconsistent with earlier studies. Studies have found that two mechanisms of neuroticism that are perception mechanism and stressor creating mechanism are closely associated with abusive supervision (Park, 2012). Highly neurotic individuals feel the effects of the stressful situation more severely as compared to others due to which they are more vulnerable to conflicts (Espejo et al., 2011). Additionally, they recall those even more often and get depressed frequently (Park, 2012). Negative affectivity (feelings and emotions) is highly associated with the perception of abuse. (Tepper et al., 2001). Others in this context are of the opinion that neuroticism being primary is more stable, while negative affectivity (Feelings and emotions) is secondary and is associated to mood state (Bamberger & Bacharach, 2006). Studies have also concluded that individuals who are emotionally unstable, or highly neurotic face more bullying from others including supervisors (Weaver, 2000). Victims of abusive supervision are generally less outspoken and less extravagant, and they portray themselves as submissive of provocative victims. Therefore it encourages others and supervisors to be more abusive towards them (McLaughlin et al., 2009).

Conclusion

The conceptual framework of this study is based on the Theory of social learning and Stress-Strain Model, which adequately explained the effects of antecedents on abusive supervision. Job demand and work-family conflict are based on stress strain model and have significant effect on abusive supervision. Reasons for this are job complexity and role ambiguity. The general practice across the world is to delegate the work who take initiatives. If organizations have cleared noncomplex jobs, and lesser role ambiguity it will not result in resource drain. Therefore, employees will take minor strain and will decrease the effect of abusive supervision. Narcissism and neuroticism in this study are based on social learning theory. Narcissism has a significant effect on abusive supervision whereas neuroticism has an insignificant effect. Both personal traits could be improved through continuous counseling. The contribution of this study is that the social learning theory and stress strain model have assimilated and helped in understanding the effect of antecedents towards abusive supervision.

Limitation and Future Research

This study was restricted to the banking sector of Karachi. Future studies could measure the effects of antecedents in other sectors as well. Effects of antecedents vary by demographic, which could also be explored in future studies. This study was quantitative, adopting mixed methodology will bring more insight into the issue. This study was restricted to antecedents of abusive supervision. Future studies incorporate consequences such as surface acting, employee cynicism, emotional exhaustion, burnout, gossip etc. This study has not incorporated the mediating roles of tendency to

gossip, emotional labor and burnout in the conceptual framework which in future studies may be incorporated.

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AN EMPIRICAL INVESTIGATION OF THE VALIDITY OF THE EHRLICH-COMMONER ENVIRONMENTAL IMPACT IN PAKISTAN

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Abstract

Environmental damage is of serious concern for people of the contemporary world. Pakistan is also suffering from environmental damage. Different consensus existed about of existence of environmental Damage, one of which is Ehrlich-Commoner environmental impact. Therefore, this study aimed to test its validity in Pakistan during 1980-2016. Data is of time series nature, stationerity checking is necessary and ADF is used for stationerity. Mix order of stationarity disclosed by the test. Resultantly, ARDL technique is suitable for estimation. Firstly, bound confirmed the existence of co-integration. In the next step long run and short run parameters are estimated. Results revealed that the variables population growth and consumption per capita are positive and significant to CO2 emission in both long run and short run. Economic growth is found positive but insignificant. Educational Expenditure is found negative to CO2 emission. It is suggested that government may reduce pollution by taking population growth, consumption and education into account.

Introduction

Increasing population is one of the important threats to the modern world. To manage and satisfy the needs of increasing population put burden on the use of existing resources and environment. Resource conservation and sustainable development is goal and became the slogan of the contemporary world. Because, the recent race in growth damaged the world's environment. The depletion of resources and high population growth is mostly observed in the developing world. It is argued that the existence in lake of resources is due to mass increase in. Therefore, population increase, resource depletion (surge in utilization population) and environmental degradation are emerged in literature closely to each other.

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Developing countries experienced high population growth during 20th century and the world of the 20th and 21st century witnessed it consequences. One of the consequences is environmental damage. Pakistan is developing country confronting the challenge of enormous growth in population; even their population growth is highest among the developing countries (Afzal, 2009). It is stood at 6th in the world with a population of about 210 million along with growth rate of 1.95% in 2017 (GOP, 2018). The considerable increase in total population every year is a challenge for the policy makers to provide them basic necessities i.e. food and shelter. As population increases the aggregate demand (Increase in consumption) will increase. The additional population demand more for basic necessities which cause increase in land use for agricultural and residential purposes leads to deforestation (Ahmad et al., 2005). Moreover, to achieve higher growth intensive use of technology were experienced. An intensity use of inputs in production leads to increase damage in resource (Ali et al., 2013).

The first theoretical perception about population growth and environmental damage was presented by Malthus (1798). He was of the vision that population growth is a real problem and intensifies the use of existed resources which hurt natural resources (environment). A debate was commenced later on of his writing; both supports and critiques are emerged. In this connection Ehrlich and Commoner portrayed the negative influence of population growth in term of environmental impact:

$$I = P \times F \quad\quad\quad (1)$$

Equation (1) explained that environmental damage is caused by the increase in total population and (P) and Environmental damages (F) per capita. According to Ehrlich and Commoner the F-term is undefined and can be defined in a verity of ways. To avoid complexity in expression (I) they defined the F-term as:

$$F = \int \{c, t, g(t)\} \quad\quad\quad (2)$$

By the addition of F-term to expression, it become as:

$$I = \int \{P, c, t, g(t)\} \qu\quad\quad (3)$$

Where the term 'I' is the Environmental Impact and key factors explaining are percentage rise in total population 'P', average consumption per capita 'c', technology 't' used in the productive environment and economic growth 'g(t)' achieved in time 't'.

Many studies in literature conducted related environmental degradation assumed that there

are several factors which causes of environmental damage but population growth contributed more aggressively in developing countries, even in developed countries (O'Neill et al., 2001; Bongarrts, 1992; Dietz & Rosa, 1994). It contributed directly and indirectly to environmental damage. Along with increase in population growth, human activities like production and consumption cause to increase Carbon dioxide emission (Mir & Storm, 2016). It breakout Greenhouse Gases and as a result world's temperature get warmer and warmer (Watson et al., 1996). Rise in Population increase the use of woods which creates the phenomena of deforestation, in return Carbon consumption reduces (Thomes & Rosa, 1997). Developing countries are considered responsible the disaster of natural resources due to their higher contribution in the world's population.

In this connection Carbon Kuznets Curve concept highlighted that in the start of the growth in per capita income environmental degradation increases with the increase in growth while it declines after some time and with further increase in growth degradation fall with per capita income increase. It means with the increase in growth at beginning CO_2 emission increases (because of intensification in the use of resources and excessive use technology in industrialization) goes to its highest and then starts to fall afterward a thresh hold level of output. Whenever the economy got enough growth and became developed. After satisfaction the needs of the society they start thinking about the sustainability and decrease the CO_2 production (Mir & Storm, 2016).

Developed countries hurt environment more than of the developing countries in the few last decades. Some of the developed countries are the main contributor to CO_2 emission. They got tremendous growth and development on the cost of high environmental degradation. Some of the developing countries are also in the list of high CO_2 emitters countries (Ahmad, 2018). China is on the top of CO_2 emitter developing country and USA is developed CO_2 country. To get higher growth Pakistan also tried a lot in the last few decades. Pakistan got enough growth while not got successful to get consistent growth. All the sectors are operated extensively i.e. Agriculture sector, Industrial sector, and Service sector. Pakistan got enough growth in its services and industrial sector development but agriculture sector not so much successful. The Share of agriculture sector to overall output of the economy falls over time while the shares of services sector and Industrial sector to total output are increased over time. Such diversion from agriculture sector to industrial and services sectors put pressure on environment (Khan & Khattak, 2014).

Sustainable development can be achieved by reducing the harmful effects of industrialization and use of technology in productive environment to minimize the CO_2 emission (Shehbaz et al., 2012). Ehrlich and Holdren (1972) presented a well-known concept by stating that the key determinants of environmental pollution are sizeable population, affluence and implementation technologies. They introduced the IPAT equation, by suggesting association between population, consumption, industrialization, affluence, technologies and environment. Many researchers adopted this equation to analyze the factors affecting environmental degradation in different economies. In this connection present study aimed to investigate IPAT model or hypothesis presented by Ehrlich-Commoner for the

country Pakistan during the period of 180-2016.

Materials and Methods

The foremost emphasis of the present work is to test the legitimacy of Environmental impact (IPAT Model); different studies have been conducted regarding Ehrlich-Commoner environmental impact. Researchers also added various aspects which considerably affect environmental damage. These factors included Population growth, urbanization, migration, and increase in output, energy consumption, and cheap level of technologies, economic growth, industrialization and per capita consumption. They exposed positive association between these factors and degradation of the environment. On the other hand, intensive use of sophisticated technology is reported inversely related to environmental degradation. They used time series and panel data for the estimation purpose. Literature reveals that some of the studies have been employed different models and different techniques relating to Ehrlich-Commoner environmental impact. In regard of environmental degradation mostly researchers have used descriptive techniques and some of them have used different model i.e. OLS, GMM Estimator, STIRPAT Model, Cross Country Analysis and Ridge Regression Method.

Similarly, many of the studies have focused on to elucidate the association between increase in population, average consumption per capita, growth and the intensity of industrialization for productivity with environmental degradation. However, in context of Pakistan, Ehrlich-Commoner environmental impact yet not tested. This study is the first ever study regarding the investigation of IPAT model to Pakistan economy.

To investigate this impact, the model is adopted.

$$I = \alpha + \beta_1 PG_t + \beta_2 CG_t + \beta_3 Y_t + \beta_4 E_t + \mu \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (4)$$

Where,

I	=	Environmental Impact (Proxy by CO_2 Emission).
PG	=	Population Growth
CG	=	Consumption
Y	=	Percentage increase in output.
E	=	Expenditure on Education as % of GDP
μ	=	Normally Distributed Error Term

The data for the variables mentioned in the model are existed over the selected period of time. We deal with time series data; therefore, stationerity testing is necessary. Augmented Dickey Fuller (ADF) test is employed to exposed the order of stationerity. The selection of suitable technique for estimation of the parameters is decided after stationerity checking. ARDL estimation technique is considered for parameters estimation.

If the value lies lower than the lower bound, it indicates that our interested variables are not co-integrated. The null hypothesis will be accepted if F-statistic falls shorter than the upper bound critical value. The hypothesis will be neither accepted nor rejected if F-statistic falls between lower and upper bound and will be rejected if F-statistic falls above the upper bound critical value. Model is of the form:

$$\Delta I = \alpha_0 + \sum \alpha_1 \Delta I_{t-1} + \sum \alpha_2 \Delta X_{t-i} + \infty_1 I_{t-1} + \infty_2 X_{t-1} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

In the above X_t showed regressor which are already defined as population growth, consumption, real output of the economy and expenditure made on education as % of total output of the country). Long run relation existence is tested with the help of Bound test. Test is grounded on the following assumptions.

$H_0 = \infty_1 = \infty_2 = 0$ (No Co-integrational relationship)

$H_1 = \infty_1 = \infty_2 \neq 0$ (There is Co-integrational relationship)

Decision regarding the existence of long run relationship depends on the value of the F-statistic (Pesaran, 2001). If the value of the F-Statistic is less than the upper bond critical value defined, we accept the null hypothesis and reject alternative hypothesis. Once the long run association existed confirmed, in the next step long run and short run coefficient are estimated. The long run and short run parameters are estimated with the help of the following equations.

$$I = \alpha_0 + \sum\alpha I_{t-i} + \sum\beta_1 PG_{t-i} + \sum\beta_2 CG_{t-i} + \sum\beta_3 Y_{t-i} + \sum\beta_4 T_{t-i} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

And

$$\Delta I = \alpha + \sum\alpha\Delta I_{t-i} + \sum\beta_1 \Delta PG_{t-i} + \sum\beta_2 \Delta CG_{t-i} + \sum\beta_3 \Delta Y_{t-i} + \sum\beta_4 \Delta T_{t-i} + Ect_{t-1}$$
$$+ \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

Data Collection

The time period of the study is from 1980 to 2016. The data for the same purpose are collected from different sources. These sources are Pakistan economic survey, World Bank website and Stat Bank of Pakistan website.

Data Description

The variables which are used in this study are; Environmental degradation (CO_2 emission), economic growth, percentage increase in consumption, population growth and Technology

(Educational expenditures).

- I   = CO_2 Emission: the data is defined and measure in metric tons per capita
- PG   = Change in Population
- CG   = Consumption Per Capita
- Y   = GDP (Total real output of the economy)
- E   = Educational Expenditure as % GDP used as a proxy for R&D because the data for Research and Development in most of the developing countries are unavailable. The same proxy is already used by Khan and Khattak (2014), Tahir, et al. (2014).

Results

The testing of series relationship and the analysis of co-relationship used a unit root test because the nature of data of our study is time series.

This study used ADF test to check the stationarity on data. Table no. 1 explaining the ADF results to check whether the data is at first difference or at level for the above described variables mentioned in the model (I, PG, CG, Y & E).

Table 1
ADF Test Results

Var	I(0)			I(1) at 1 %			Con
	A	**B**	**C**	**A**	**B**	**C**	
I	-6.602	-4.241	0.000	---	---	---	I(0)
PG	-2.890	-2.735	0.003	---	---	---	I(0)
C	-5.600	3.715	0.000	---	---	---	I(0)
Y	-3.690	-3.700	0.007	---	---	---	I(0)
E	-2.012	-3.700	0.250	-4.703	-3.640	0.000	I(1)

NOTE: Where Var= Variables and Con= Conclusion, The litters A=Calculated statistic, B=Critical value and C= Probability.

The bird eye view of the above table enables us that all the variables are stationary at level except health expenditure as percentage of GDP. We can conclude from the stationerity testing that we have mix order of stationerity level of the variables at 1% of significance. Therefore, we can proceed with ARDL technique.

Table 2
Long Run Relationship Existence Testing

Bound Test		
	value	k
F-Statistic	6.554	4
Significant %	Lower Bound	Upper Bound
10	2.673	3.172
5	2.975	4.015
1	3.801	5.017

The values of the F-Calculated and F-critical are compared in the Table-2. It is clear from the values that there is co-integrational relationship existed. Because, the estimated value of F-statistic i.e. F=6.4435 is greater than the upper class boundary at 1% critical values of significance.

Table 3
Long Run Co-efficient

Variable	Parameters	Std. Error	t- Value	P- Value
PG	6.032	1.670	3.611	0.003
CG	0.513	0.930	2.701	0.019
Y	0.351	0.758	0.463	0.651
E	-0.970	2.753	-2.168	0.050
C	-11.801	5.763	-2.047	0.063

Results in Table 3 shows that there is co-integrational relationship between the variables. The positive sign of the coefficient of Population growth shows the positive impact on CO_2 emission in long run having 6.03 co-efficient values which is significant statistically. It is obvious from the above results that 1 percent rises occur in population growth is caused to increase Carbon emission by 60.3%. The variable Consumption growth is significant statistically, while the positive sign if the coefficient shows the positive impact of consumption growth on Carbon Emission having 0.51 coefficient value. It is stated from the results that if consumption increase by 1 percent will leads to increase Carbon emission by 51 percent. The variable Economic growth is insignificant statistically and positive sign show that it is directly correlated with depended variable which having 0.35 of coefficient value. It is obvious from the above results that 1 percent increase in economic growth is caused to increase Carbon emission by 35 percent. The variables Educational Expenditure is significant statistically, while the negative sign of the variable confirms inverse relationship between educational expenditure and CO_2 emission in Pakistan. In the long run the coefficient of educational expenditure is -5.97. It

reflects that if Educational Expenditure increased by 1 percent CO_2 will be reduced by 5.9 percent.

Table 4
Error Correction Representation

Dependent Variable: I				
Selected Model: ARDL(3, 3, 3, 3, 2)				
Date: 03/06/18 Time: 19:49				
Sample: 1980-2016				
Var	**Coeff**	**Std. Error**	**t-Value**	**P-value**
D(I(-1))	-0.524	0.308	-1.701	0.114
D(I(-2))	-0.538	0.285	-1.888	0.083
D(I(-3))	-0.339	0.171	-1.976	0.071
D(PG)	0.964	41.542	0.772	0.454
D(PG(-1))	0.624	93.145	2.948	0.012
D(PG(-2))	0.451	36.699	-4.344	0.001
D(CG)	0.641	0.196	3.270	0.006
D(CG(-1))	0.984	0.273	-3.598	0.003
D(CG(-2))	0.661	0.284	-2.321	0.038
D(Y)	0.449	0.433	1.037	0.319
D(Y(-1))	0.492	0.399	-1.233	0.241
D(Y(-2))	0.196	0.440	-0.446	0.663
D(Y(-3))	0.934	0.394	2.366	0.035
D(E)	-0.174	3.431	-2.673	0.020
D(E(-1))	-0.550	3.463	-3.045	0.010
Ect	-0.998	0.306	-3.383	0.005

Co-inteq = I - (6.032*PG + 2.513*CG + 0.351*Y -5.970*E -11.801)

In short run, results are given in Table 4. The variable population growth is found positive and significant statistically in the short run. Means that it directly affected environmental degradation with the coefficient value is 0.96, while 0.62 is at 1st lag and 0.45 is at 2nd lag. While the variable consumption growth is significant statistically in short run which has also direct effect on environmental degradation. The coefficient value of CG is 0.64, while 0.98 is at 1st lag and 0.66 is at 2nd lag. In contrast to that coefficient of total output growth represented by 'Y' (economic growth) is found positive but statistically insignificant. Which means that output growth has no contribution to the determination of environmental impact inthe short run? It coefficient value is 0.44, while 0.49 is

at 1st lag, 0.19 is at 2nd lag and 0.93 is at 3rd lag. However, the coefficient of educational expenditure is significant statistically and presenting inverse relation with environmental degradations in short run. The coefficient value of E is -0.17 and -0.50 is at 1st lag.

Table 5
LM-Test Serial Correlation

F statistic	2.006
Obs* R2	8.998
Prob. F (2,10)	0.1904
Prob- (2)	0.0081

It is clear from the table 5 given above that the problem of serial correlation not present in the model with the selected variables. The purpose mentioned above Breusch-Godfrey test is used here to diagnose the problem of Auto Correlation.

Cumulative Sum of Recursive Residual and Cumulative Sum of Recursive Residual of Square tests are used to test the stability of the parameters in the model. For the said purpose graphical presentation are given in the following figures at at 5% level showed that the model is stable at 5% level of significance. As, it is clear from the figures that the estimated line falls between the critical bound limits showed in both the figures. Both CUSUM and CUSUMSQ showed that the model is well specified and stable with in the selected period of time.
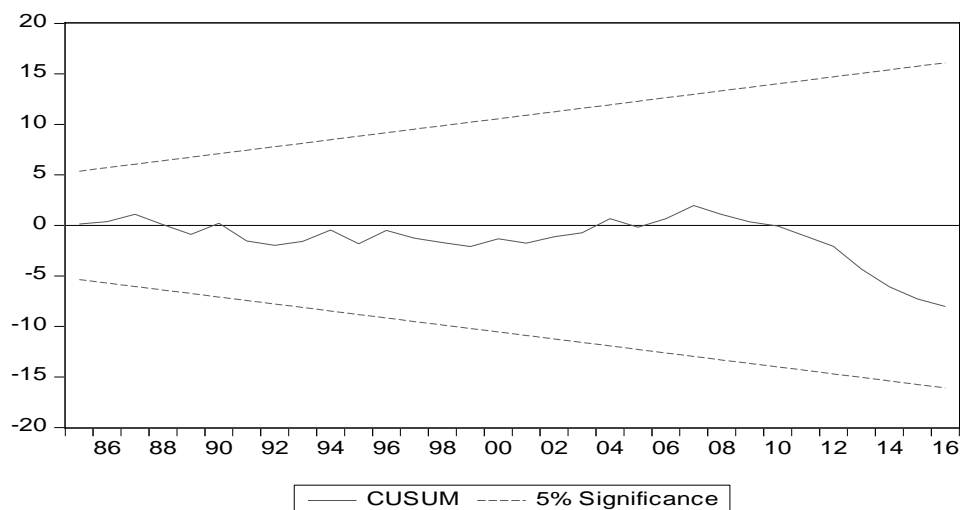
Figure 1: Result of CUSUM
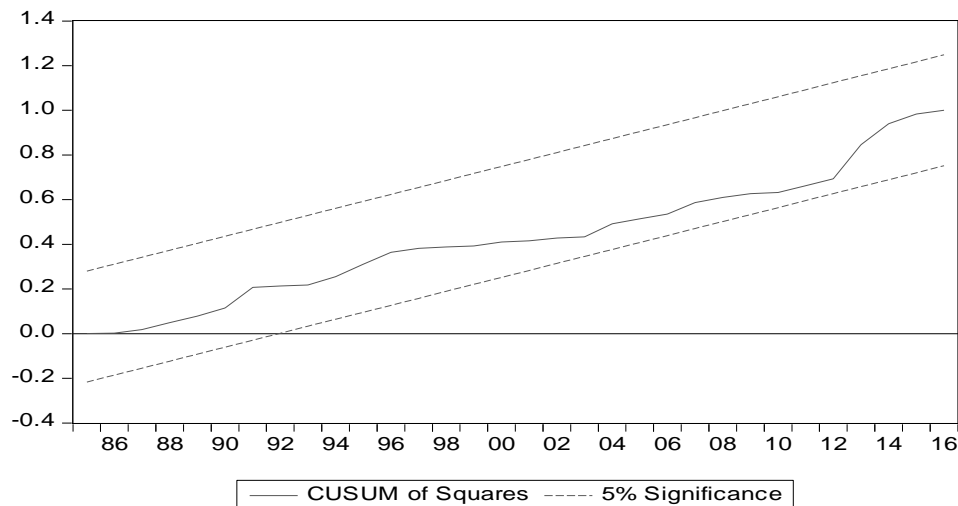
Figure 2: Results of CUSUMSQ

Discussion and Conclusion

The prime aim of the study is to investigation Ehrlich-Commoner environmental impact in Pakistan. The importance of the study is cleared from the previous literature mostly related with IPAT model. Every researcher examined the different views about the impact of Population growth, Domestic Consumption, Economic Growth and Technology on CO_2 emission. Mostly studies agreed on that environmental damage is due to population growth, increase in consumption, economic growth. In this connection, Ehrlich-Commoner impact is investigated for Pakistan which is ignored. In this regard data are got from WDI and Economic survey of Pakistan for the period of 1980-2016.

As the data is of time series nature, stationerity is tested through ADF test. Mixed order of stationerity is reported by the ADF test. Literature suggests ARDL Co-integration technique for estimation purpose. The Bound test result confirms the existence of co-integration. Results declares that population growth is founded positive and significant statistically. The results of the present study supported the outcomes of the studies conducted by Bilsborrow (1992), Birdsall (1992), Commoner (1993), Nagdeve (2002), Pradhan (2004), Neumayer and Cole (2004), Azhar et al. (2005) and Bjerke and Rickardsson (2017). The variable consumption is also founded statistically significant with positive sign in both long and short runs. Muhammad et al. (2011) and Zhu and Peng (2012) also end with the same findings. They are also of the view that there is positive association between consumption and environmental degradation. The impact of population is found positive but insignificant statistically. Conversely, the variable technology (Education Expenditure) is founded significant statistically

and has indirect relation with environmental impact in both long and short runs. The results of the presented supported the findings regarding educational expenditure and environmental degradation conducted by Jorgenson (1993), Goklany (2009) Ehrlich (2014) and Bjerke and Rickardsson (2017).

Some diagnostic tests are also incorporated to check some of the well-known econometric problems associated with econometric problems. These tests are serial correlation test, CUSUM and CUSUM square. No serious problem is reported by tests.

Some policy suggestions are advised on the basis of the findings of the present study for the survival and preservation of the environment. To overcome the problem of preservation of the environment Government should pay special attention towards population growth control the additional bulk of population every year which put pressure on natural resources and adversely affect environment. People should to spend and invest in those products which have less harmful impact on environment. It may be control through to provide substitute against those products which generate environmental problems. Expenditure on education should be increased in order spread awareness in people to protect the environment.

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MEASURING MARKET EFFICIENCY THROUGH CALENDAR EFFECT ANOMALY IN DIFFERENT STATES OF ECONOMY PERIODS

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Abstract

This study investigates the day-of-the-week (DOW), week-of-the-month (WOM) and month-of-the-year (MOY) effect anomalies on the stock market returns by using the data of KSE100 index from January 2000 to February 2015. The sample period is divided into three clusters namely as; i) normal state of economy periods, ii) upturn state of economy periods and iii) downturn state of economy period to investigate the presence of calendar effect anomaly. The dummy variable approach in regression with lagged value of returns is being used to estimate the results. The DOW analysis documents the mixed results of significant daily returns in all state of economy sample periods and found the presence of DOW anomaly. The WOM analysis reveals that the first and fourth-week returns are positive and statistically significant in the normal, upturn and overall time periods. The MOY analysis found the presence of January effect in all state of economy time periods. It is concluded that the capital market of Pakistan is not devoid of calendar effect anomalies and investors can beat market forces by taking the advantage of the weak form of market efficiency. The explanation for the calendar effect anomalies is also valid in individual share price remains the topic of future debate.

Keywords: Calendar Effect Anomaly, Efficient Market Hypothesis, Karachi Stock Exchange, Positive Return, Volatility Behavior.

JEL Classification: Z000

Introduction

An extant literature on the efficient market hypothesis (EMH) documented the presence of calendar effect on stock returns and trading volume in many developed markets. In recent years, an extant literature of calendar effect anomaly indicating that daily stock returns vary according to the days of the week; particularly Monday daily market returns get negative values. After studying the S&P Composite Index, Cross (1973) and French (1980) explored that the Monday closing values are

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smaller than the Friday price indices and therefore, Monday take negative returns in general. Gibbons and Hess (1981) have taken the DJ Industrial Index closing prices and pointed out similar findings.

The Pakistani capital market also confronts similar type of calendar anomalies fact. Several researchers have been undertaken to probe the calendar effect in Karachi Stock Exchange (KSE). Abbas and Javid (2015) investigate the DOW effect on stock returns and trading volume by using the benchmark indices of Pakistan, Sri Lanka, India and Bangladesh. Their results document the presence of DOW anomaly and asymmetric volatility behavior in all SAARC countries. In the Pakistani market, Monday takes negative returns but Wednesday & Friday takes positive returns. Raza, Shah, and Malik (2015) also investigate the presence of DOW effect by using the KSE100 index data from 1997 to 2014. Their results support the weak form of market efficiency and found negative returns on Monday and positive returns on Friday. Few studies have also explored the MOY anomaly effect in KSE and support the presence of positive January effect and negative May effect (Ullah, Ullah & Ali, 2016; Shamshir & Baig, 2016; Zafar, Urooj & Farooq, 2010). Only Ali and Akbar (2009) have investigated the WOM effect and find no evidence of weekly effect.

In Pakistan, researchers have used different estimation techniques and sample periods to estimate the DOW and MOY effects separately with showing mixed results. The behavior and performance of Pakistani stock market observed impulsive over the past two decades. In 2005, due to some poor economic indicators and war against terrorism affects the KSE performance badly and the stock market crashed due to management inabilities, personal exaggeration and giant investment companies scheming. During 2005 to 2008 and 2012 to 2015, market performance was terrific[4] and touched its peak levels due to high GDP growth rate, low inflation rate, stable exchange rate and bulky FDI. During May 2008 to May 2009 when stock prices were declined due to the US subprime mortgage financial crisis and this adverse effect appear around the clock on financial markets of the world and in KSE as well. No single study incorporates all the above-mentioned paradigms in their calendar effect analysis.

To stick down this research gap, this study investigates the day-of-the-week effect, week-of-the-month effect and month-of-the-year effect on the stock returns in different states of the economy by using the KSE100 Index data during 2000-2015. The dummy variable approach in regression with lagged value of returns is being used to estimate the results. The lagged value of returns is included to control the autocorrelation issue and exclude intercept to avoid dummy trap of perfect multi-collinearity.

The key objective of this study is to investigate the extent of market efficiency and the presence of calendar effect in the stock market of Pakistan. This study analyses the time series behavior

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[4] According the Bloomberg, KSE remained best stock market in the world during 2012-2013 by posting 48.9% and 49.4% increase in KSE100 index respectively.

of stock returns in the clusters of normal, upturn and downturn state of economy time periods. The results of this study show that KSE is an inefficient market and investors can beat the market forces because market returns are not constant over the different time periods such as daily, weekly and monthly.

This study can have contributed to the literature of EMH in two ways. The calendar effect anomaly is tested in the background of different market paradigms by using the data of market returns. The portfolio managers and technical analysts can devise their trading strategies under the findings of this study in order to get superior returns due to the weak form of market efficiency.

Literature Review

Calendar Effect in International Capital Markets

Katernia et al. (2002) found negative returns in their research for Greece on Thursdays instead of Mondays or Tuesdays as it has been observed in most of the other markets. Van (2003) conducted a research in Netherlands during 1981-1989 by using daily data. He confirmed negative stock returns on Monday as compared to other trading days. Agathee (2006) examined the day of the week effect in Mauritius stock exchange. He used daily observations of the stock market over the period 1998-2006 to substantiate the results. His empirical results showed that Friday returns were higher as compared to other days of the week. Galai and Kadar-Levy (2005) investigated the day of the week effect on the Tel-Aviv stock exchange. They confirmed the existence of the day of the week effect. Maria and Alejandro (2006) have elucidated a research on the day of the week anomaly during 1997-2004 by using GARCH and T-ARCH model to find the results. They found no abnormal behavior in stock returns. Kenourgios, Samitas, and Papathanasiou (2008) have performed a research on the day-of-the-week anomaly in Athens stock exchange during the period 2001-2005. OLS methodology and GARCH model were applied to derive the results. Their study 's result showed that DOW effect is present in ASE. Nath and Dalvi (2004) in his study of the DOW effect in Indian stock market over the period 1999-2003 found that returns were significant on Monday and Tuesday. They used robust regression and dummy variables. They also concluded that market is inefficient. Kiymaz the Berument (2003) documented a study on the DOW during 1998-2002. They examined the data on daily prices of different stocks. ARCH & GARCH and QMLE models were used to test the difference among stock market returns. The research revealed that markets with high volatility have the lowest trading volume.

Calendar Effect in Pakistani Capital Market

Ullah et al. (2016) investigated the January effect in Pakistan by using the data of KSE100 index during 2004-2014. They confirm the weak form of market efficiency because January returns are positive and significant. They also estimated the impact of budget effect as negative returns for May

and August. Shamshir and Baig (2016) investigated the turn-of-the-month, month-of-the-year, and tax-loss-selling effects by using the data of four indices during 2009-2014. They employed dummy variables regression techniques and found the January effect in all indices. Their results also revealed the negative returns for June and positive returns for July validate the budget effect. They found the presence of the turn-of-the-month effect in KSE100 index and KSE all shares index but invalidate for KMI30 and KSE30 indices. Abbas and Javid (2015) examined the presence of the DOW effect on stock returns, volume and volatility by using the data of Pakistan, Bangladesh, India and Sri Linka. They used dummy regression with ARMA specification to detect DOW on stock returns and volume, and found the market inefficiency in all four countries. They also used the GARCH model to detect DOW effect in volatility and found the presence of asymmetric volatility behavior in all countries. For Pakistan, they found negative returns on Monday and positive returns on Wednesday and Friday are statistically significant. Raza et al. (2015) also documented the DOW analysis by using the data of KSE100 index during 1997-2014. There results consistent with the Abbas and Javid and found that Monday and Friday's returns are statistically significant from other days. Hussain et al. (2011) used regression analysis to detect DOW effect by using the data of KSE100 index during 2006-2011 and found that weak form of market efficiency.

Research Methodology

Data

The key objective of this study is to determine the market efficiency using the data of daily, weekly and market returns of KSE100 index from January 2000 to February 2015. The data of KSE100 index is collected from Yahoo Finance[5]. The sample period is divided into three clusters namely as; i) normal state of economy periods (Jan-2000 to Aug-2005 &Jun-2009 to Jan-2012), ii) upturn state of economy periods (Sep-2005 to Apr-2008 & Feb-2012 to Feb-2015) and iii) downturn state of economy period (May-2008 to May-2009).

Hypotheses

H_1: The calendar effect anomaly does not exist in KSE.
H_2: There is no significant association of calendar effect with different states of the economy.

Methodology

The daily market returns (*DMR*) are calculated by taking the first difference of natural logarithm of daily KSE100 index values.

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[5] http://finance.yahoo.com

$$DMR_t = \ln\left(\frac{D_t}{D_{t-1}}\right) * 100 \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \quad (1)$$

Where DMR_t represents daily market return on the respective index on day t. Dt is the closing value of index on day t and D_{t-1} represent the closing value of index on day t-1.

$$WMR_t = \ln\left(\frac{W_t}{W_{t-1}}\right) * 100 \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \quad (2)$$

Where WMR_t represents weekly market returns on respective index at time t. W_t is the closing value of index of the current week and W_{t-1} is the closing value of index of the preceding week.

$$MMR_t = \ln\left(\frac{M_t}{M_{t-1}}\right) * 100 \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \quad (3)$$

Where MMR_t presents monthly market returns on respective index at time t. M_t is the closing value of index of the current month and M_{t-1} is the closing value of index of the preceding month.

A number of former studies[6] investigated the calendar effect by employ the simple Ordinary Least Square methodology by regressing market returns on five daily dummy variables in the day-of-the-week, four weekly dummy variables in the week-of-the-month and twelve monthly dummy variables in the month-of-the-year effect analyses. There are two downsides of this methodology. First, residual errors may be auto-correlated causing misleading inferences. Second, error variances may not be constant over time. To control the auto-correlation issue, we can include lagged values of the return variable in the regression equations as one of the deterministic variables (Kiymaz & Berument, 2003). The intercept term is excluded in order to avoid the dummy variable trap of perfect multi-collinearity (Brooks, 2008). Now returns have the following stochastic process:

$$DMR_t = \beta_1 Mon_t + \beta_2 Tue_t + \beta_3 Wed_t + \beta_4 Thu_t + \beta_5 Fri_t + \sum_{I=1}^{n} \beta_i DMR_{t-i} + \varepsilon_t \quad \dots\dots\dots \quad (4)$$

Where DMR_t represents a daily market return on the respective index on day t. *Mon, Tue, Wed, Thu* and *Fri* are considered as dummy variables of Monday, Tuesday, Wednesday, Thursday and Friday respectively. If the trading day is Monday then *Mon*=1 and 0 otherwise, if the trading day is Tuesday then *Tue* = 1 and 0 otherwise; and so on for the rest of week days. β_1 to β_5 are the slope coefficients for all dummy variables used by OLS equation (4) and '' is a residual term.

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[6] Bayer and Kan (2002), Katernia et al. (2002), Kiymaz and Berument (2003)

$$WMR_t = \beta_1 Wk1_t + \beta_2 Wk2_t + \beta_3 Wk3_t + \beta_4 Wk4_t + \sum_{I=1}^{n} \beta_i WMR_{t-i} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots (5)$$

Where WMR_t represents weekly market returns on the respective KSE100 index at time t. *wk1, wk2, wk3* and *wk4* are considered as dummy variables of the first, second, third and fourth-week of the particular month respectively. If the trading week is first then *wk1*=1 and 0 otherwise, if the trading week is second then *wk2* = 1 and 0 otherwise; and so on for rest of other weeks. β_1 to β_4 are the slope coefficients for all dummy variables used by OLS equation (5) and '' is a residual term.

$$MMR_t = \beta_1 Jan_t + \beta_2 Feb_t + \beta_3 Mar_t + \beta_4 Apr_t + \beta_5 May_t + \beta_6 Jun_t + \beta_7 Jul_t + \beta_8 Aug_t +$$
$$\beta_9 Sep_t + \beta_{10} Oct_t + \beta_{11} Nov_t + \beta_{12} Dec_t + \sum_{I=1}^{n} \beta_i MMR_{t-i} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

Where MMR_t presents monthly market returns on the respective KSE100 index at time t. *Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov* and *Dec* are considered as dummy variables of January, February, March, April, May, June, July, August, September, October, November and December respectively. If the trading month is January then *Jan* =1 and 0 otherwise, if the trading month is February then *Feb* = 1 and 0 otherwise; and so on for rest of other months. β_1 to β_{12} are the slope coefficients for all dummy variables used by OLS equation (6) and '' is a residual term.

Results and Discussion

Descriptive Statistics

Table 1 presents the descriptive statistics of daily market returns under normal, upturn, downturn and overall sample periods. Tuesday, Monday and Friday returns are higher than the other week days in the normal, upturn and downturn sample periods respectively, while Tuesday returns are higher in the overall sample period. These results are contrary with (Abbas & Javid, 2015; Raza, Shah & Malik, 2015; Haroon & Shah, 2013) but consistent with (Shamshir & Mustafa, 2014; Hussain et al., 2011).

Table 1

Descriptive Statistics of Daily Market Returns Under Various States of Economy

Days	N	Mean	Median	S.D	Min	Max	Skewness	Kurtosis
Normal State of Economy								
Monday	414	0.1100	0.1058	1.6391	-4.5936	5.9680	-0.1437	0.9346
Tuesday	414	0.2360	0.3069	1.7339	-7.4493	8.8795	0.0696	3.5530
Wednesday	414	-0.0183	-0.0239	1.5402	-5.8059	7.5302	0.2740	3.4670
Thursday	410	0.2019	0.2558	1.2058	-4.4959	4.7875	-0.4600	2.4140
Friday	403	0.0555	0.0468	0.9719	-3.9766	3.1170	-0.1886	1.8746
Upturn State of Economy								
Monday	285	0.1769	0.2178	0.9032	-3.1581	2.7197	-0.4666	1.6219
Tuesday	275	0.1080	0.2242	1.1337	-4.5666	2.8761	-0.9737	1.6761
Wednesday	286	0.1350	0.2854	1.6843	-5.8629	4.6796	-0.5904	1.2003
Thursday	285	0.1248	0.1015	0.9090	-5.1415	4.8177	-0.5407	8.2890
Friday	276	0.0913	0.0646	0.7979	-4.4556	2.8563	-0.5910	4.2112
Downturn State of Economy								
Monday	54	-0.5427	-0.6238	2.4964	-5.0053	4.1957	0.1191	-0.8818
Tuesday	54	-0.3060	-0.0529	2.1087	-4.2700	4.4929	0.0582	-0.0996
Wednesday	53	-0.5817	-0.6111	2.2184	-4.5150	8.6050	1.2929	5.1375
Thursday	49	-0.3292	0.0000	1.1227	-4.2215	0.0328	-3.1566	8.3131
Friday	54	0.4737	0.2219	2.1623	-3.8709	5.4442	0.1554	-0.3915
Overall Sample Period								
Monday	753	0.1137	0.0934	1.2082	-5.0053	5.4442	0.0797	2.1039
Tuesday	743	0.2120	0.2718	1.4621	-4.5936	5.9680	-0.3358	1.8102
Wednesday	753	0.0876	0.0785	1.6582	-7.4493	8.8795	0.1958	3.6728
Thursday	744	-0.0711	0.0220	1.6614	-5.8629	8.6050	-0.2965	1.9856
Friday	733	0.1322	0.1441	0.8235	-4.4556	2.8563	-0.3810	2.4346

Table A1&A2 (see annexure) presents the descriptive statistics of weekly and monthly market returns respectively under normal, upturn, downturn and overall sample periods. Week2, week4, week1 returns are higher than the other week returns in the normal, upturn and downturn sample periods respectively, support the presence of WOM effect. Results reveal that returns are not constant across the months and found the presence of January effect and Budget effect anomalies in the KSE. These results are consistent with existing studies in Pakistan (Zafar, Urooj & Farooq, 2010; Shamshir & Baig, 2016; Ullah, Ullah & Ali, 2016).

OLS Analysis

Table 2 reports the results of regression models of daily market return under the various states of economy periods and validate the weak form of market efficiency. Results of normal state of

economy analysis reveal that Tuesday and Thursday returns are statistically significant and different from other days at 1% level each. These returns are consistent with descriptive analysis and (Shamshir & Mustafa, 2014; Husnain et al., 2011; Ali & akbar, 2009). Under the upturn state of economy analysis, Monday daily market returns are positive and significant from other days at 5% level and investors can beat the market by investing on Monday in the bullish momentum. Under the downturn state of economy analysis, results are not statistically significant, while the results of full sample period indicating that Monday, Tuesday and Friday daily market returns are statistically significant. These results are consistent with (Abbas & Javid, 2015; Raza at el., 2015; Shahmshir & Mustafa, 2014; Husnain at el., 2011; Agathee, 2006; Van, 2003; Nath & Dalvi, 2004; Samirlock & Starks, 1986). Another implication of this study is to support the presence of weekend effect in the KSE.

Table 2

Regression Models of Daily Market Returns Under Various States of Economy

Variable	Coeff	Std. Error	t-Statistics	P value	N
Normal State of Economy					
Monday	0.1071	0.0713	1.5027	0.1331	414
Tuesday	***0.2293	0.0714	3.2116	0.0013	414
Wednesday	-0.0178	0.0712	-0.2504	0.8023	414
Thursday	***0.1962	0.0717	2.7378	0.0062	410
Friday	0.0540	0.0722	0.7474	0.4549	403
Upturn State of Economy					
Monday	**0.1640	0.0672	2.4431	0.0147	285
Tuesday	0.1001	0.0683	1.4668	0.1427	275
Wednesday	0.1247	0.0670	1.8610	0.0630	286
Thursday	0.1157	0.0671	1.7252	0.0847	285
Friday	0.0846	0.0681	1.2412	0.2147	276
Downturn State of Economy					
Monday	-0.3792	0.2763	-1.3721	0.1712	54
Tuesday	-0.2215	0.2746	-0.8067	0.4206	54
Wednesday	-0.4313	0.2785	-1.5484	0.1228	53
Thursday	-0.2606	0.2880	-0.9047	0.3665	49
Friday	0.3422	0.2755	1.2419	0.2154	54
Over all Sample Period					
Monday	**0.103884	0.0509	2.0417	0.0413	753
Tuesday	***0.193518	0.0513	3.7719	0.0002	743
Wednesday	0.0799	0.0509	1.5705	0.1164	753
Thursday	-0.0648	0.0512	-1.2661	0.2056	744
Friday	**0.120581	0.0516	2.3376	0.0195	733

***Significance at level 1%, **Significance at level 5% and *Significance at level 10%

Table 3 presents the results of regression models of weekly market return and support the presence of WOM effect. Results of the normal state of economy indicating that first, second and fourth-week market returns are statistically significant at 5%/1%/1% level respectively. According to descriptive statistics table A1, first and second-week market returns were abnormal as compare to the other trading weeks. Results are contradicted with (Ali & Akbar, 2009). Under the upturn state of economy periods, third and fourth-week market returns are significant at 1% level each. It has been observed that the investors prefer to invest in second half of the month when market exemplifies bullish behavior. Under the downturn state of economy period analysis reveals the presence of WOM effect in KSE. Results of full sample period analysis reveal that first and last-week market returns are statistically significant with 95% confidence interval and it shows the presence of WOM effect anomaly. It has been observed that generally investors devote their portfolio in the early days of a calendar month and offload in the last week due to the rollover week effect in the market. Another implication of these findings supports the presence of financing rollover week effect anomaly in the KSE.

Table 3

Regression Models of Weekly Market Returns Under Various States of Economy

Variable	Coeff	Std. Error	t-Stat	P value	N
Normal State of Economy					
Week1	**0.7984	0.3324	2.4017	0.0168	100
Week2	***1.0286	0.3333	3.0860	0.0022	100
Week3	-0.6089	0.3316	-1.8364	0.0670	100
Week4	***1.0117	0.3339	3.0302	0.0026	100
Upturn State of Economy					
Week1	0.5499	0.2902	1.8949	0.0592	69
Week2	0.1285	0.2888	0.4448	0.6568	69
Week3	***0.7902	0.2920	2.7067	0.0072	69
Week4	***1.0915	0.2952	3.6981	0.0003	69
Downturn State of Economy					
Week1	0.6151	1.7279	0.3560	0.7235	13
Week2	-3.1175	1.7955	-1.7363	0.0891	13
Week3	-1.5338	1.7465	-0.8782	0.3843	13
Week4	-0.1954	1.7259	-0.1132	0.9103	13
Over all Sample Period					
Week1	***0.6444	0.2475	2.6041	0.0094	183
Week2	0.3367	0.2466	1.3650	0.1727	200
Week3	-0.1478	0.2464	-0.6001	0.5486	165
Week4	***0.8944	0.2487	3.5971	0.0003	183

***Significance at level 1%, **Significance at level 5% and *Significance at level 10%

Table 4 documents the results of multiple regression models of monthly market return and support the evidence of January effect in KSE. The results of overall sample period analysis depict that the January and October monthly market returns are statistically significant at 1% and 5% level respectively. It has been observed from descriptive statistics table A2, January monthly market returns are positive and significant as compare to other trading months. This validates the presence of MOY effect anomaly in KSE. Shamshir and Baig (2016), and Ullah et al. (2016) also find positive and significant returns in January. Under the normal state of economy analysis; January, May and December monthly market returns are significant at level of 1%, 5% and 1% respectively. This indicates that the investors prefer to endow funds during Happy New Year days and divest during budgetary days due to expectations of new taxes. Under the upward state of economy period analysis; January, July and October monthly market returns are statistically significant. January returns are significant at 99% confidence interval but July and October monthly returns are statistically significant at 95% confidence interval. The whole analysis discloses the January effect and presence of MOY anomaly in the market.

Table 4

Regression Models of Monthly Market Returns Under Various States of Economy

Variable	Coeff	Std. Error	t-Stat	P value	N
Over all Sample Period					
January	***6.8214	2.0527	3.3232	0.0011	16
February	3.6337	2.0210	1.7980	0.0740	16
March	3.3653	2.0235	1.6631	0.0981	16
April	2.5930	2.0748	1.2497	0.2131	15
May	-3.5054	2.0854	-1.6809	0.0946	15
June	2.2291	2.0752	1.0742	0.2843	15
July	2.0916	2.0737	1.0086	0.3146	15
August	-0.2013	2.0693	-0.0973	0.9226	15
September	1.5282	2.0711	0.7378	0.4616	15
October	**4.2223	2.0889	2.0213	0.0448	15
November	0.9260	2.0699	0.4474	0.6552	15
December	2.3867	2.0749	1.1502	0.2517	15
Normal State of Economy					
January	***9.9069	2.7548	3.5962	0.0005	9
February	4.0815	2.8356	1.4394	0.1536	8
March	3.8578	2.8163	1.3698	0.1742	8
April	1.3850	2.8047	0.4938	0.6227	8
May	**-5.8043	2.8450	-2.0402	0.0443	8
June	3.4163	2.6551	1.2867	0.2016	9
July	2.7522	2.6547	1.0367	0.3027	9
August	4.5435	2.6827	1.6937	0.0939	9
September	-0.3287	2.8046	-0.1172	0.9070	8
October	5.2135	2.8348	1.8391	0.0693	8
November	-0.1740	2.8032	-0.0621	0.9506	8
December	***8.7960	2.7453	3.2040	0.0019	9
Upturn State of Economy					
January	***7.1756	2.2472	3.1931	0.0023	6
February	3.8827	2.0416	1.9018	0.0623	7
March	0.8050	2.0038	0.4017	0.6894	7
April	4.1322	2.1725	1.9021	0.0622	6
May	1.6943	2.3535	0.7199	0.4745	5
June	1.0303	2.3533	0.4378	0.6632	5
July	**5.5770	2.4193	2.3052	0.0248	5
August	-4.6418	2.3824	-1.9484	0.0563	5
September	4.2946	2.1833	1.9670	0.0541	6
October	**4.8686	2.2038	2.2092	0.0312	6
November	2.8056	2.1615	1.2980	0.1995	7
December	1.8794	2.1509	0.8737	0.3859	6

***Significance at level 1%, **Significance at level 5% and *Significance at level 10%

Conclusion

The rising number of anomalies has direct distrust on the efficient market hypothesis. This study assesses the calendar effect anomaly by using the data of KSE100 index during 2000-2015. The dummy variable approach in regression with lagged value of returns is used to estimate the empirical findings. The results based on DOW returns model point out the presence of the day-of-the-week effect in the normal, upturn and overall time periods. Under the upturn state of economy, Monday market returns seem to be significant and greater than the other week days. Monday, Tuesday and Friday returns seem positive and significant when all periods used as a sample and these results are consistent with existing literature. Another implication of weekend effect anomaly identified under the findings of DOW analysis. The results based on the WOM returns model indicate the presence of the week-of-the-month effect in the normal, upturn and overall time periods. On the similar basis, MOY returns model show the presence of the January effect. Some of the mentioned findings are not unswerving with the findings stated in the literature of stock market of Pakistan; this may be due to the different model and sample period used. Another implication of January effect and Budget effect anomalies has been recognized during MOY analysis. The results of this study can help investors to make their investment decisions by taking into account both returns patterns observed under different market paradigms and associated risk. It is concluded that the capital market of Pakistan is not devoid the calendar effect anomalies and KSE is an inefficient market.

Limitations and Future Directions

The major limitation of this study is that the KSE indices are not offered for trading in the non-deliverable future contracts, so investors can only invest in the ordinary stocks. Furthermore, KSE is a slim market where a small number of large investors possess the major chunk of the market and they can control and outperform the market by following the short term arbitrage policy whereas, it could not be successful in the long run and market adjust automatically through mean reversion. So, the investment strategy under the findings of this study may not be efficient and offer expected returns for individual stocks. But if the portfolio size is closer to the market then investment strategy under the findings of this study may offer abnormal returns to the investors.

This study only analyses the KSE100 index return patterns during various market paradigms while other indices such as KSE All Shares index, KSE30 index and KMI30 index return behaviors can be investigated in the future under pre and post financial market reforms. The explanation for the calendar effect anomalies is also valid in individual share price that remains the topic of future debate.

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PSYCHOLOGICAL WELL-BEING AND ORGANIZATION-BASED SELF-ESTEEM: THE INTERACTIVE ROLE OF ABUSIVE SUPERVISION

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Abstract

The paper has been written to review the relationships among several constructs (i.e. abusive supervision (AB), psychological well-being (PWB), and organization-based self-esteem (OBSE). Also, the study asserted the interactive role of AB in the existing connection with PWB and OBSE. The data were collected by the purposive sampling and Participants of the study were 516 teachers who have working experience at the public colleges within Pakistan between January-December 2015-16. The findings recommended that PWB is positively correlated with OBSE and AB is inversely connected with PWB. However, it is not supported the hypothesis suggesting that AB may play an important moderating role between PWB and OBSE. This study contributes in the existing literature on AB, OBSE, and PWB in the West-Asian context. Also, it contributes to both organizational theory and practice by enriching the current knowledge about the potential moderators of PWB so that employees' health can be significantly increased.

Introduction

Employee well-being is a primary problem for organizations. Due to employees' low psychological health, their productivity decreases, and organizations confront productivity loss. Given the decreasing productivity effect to which low psychological health leads, increasing it significantly could create a sustainable competitive advantage for organizations. Psychological well-being (PWB) is a main area of positive psychology. Employees' PWB has become important in daily life, as well

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as at the workplace. In this sense, it is necessary to determine the antecedents of psychological well-being. OBSE is one of the antecedents of PWB and has come to investigation recently (Tang & Gilbert, 1994), and OBSE has gained interest of the researchers in various fields. OBSE is one of the constructs that is based on self-esteem and which may be extracted more job-related experiences within organization (Pierce, Gardner, & Crowley, 2016: 181), and so it provides that employees observe themselves as an important, meaningful, capable, and valuable (Pierce et al., 1989). In this respect, based on Disposition Approach (Staw & Ross, 1985; Staw, Bell, & Clausen, 1986), Spillover effect (Lambert, 1990) or Need Theories (Maslow, 1943), OBSE may be a positive predictor of PWB. In simple words, those high in OBSE is likely to have higher PWB compared with those low in OBSE (Pierce et al., 2016).

In vice versa, study on the effects of AB on PWB has generally been ignored. AB is the bad image of leadership (Liu et al., 2012) and means employees' perceptions regarding antagonistic nonverbal and verbal attitudes without physical contact of managers or leaders (Tepper, 2000). There are destructive effects on the PWB of AB. Indeed, AB affects generally many positive attitudes, behaviors, and outcomes (Tepper, 2007; Bowling & Michel, 2011; Martinko, Harvey, Brees & Mackey, 2013). Thus, AB needs to be determined effects on psychological-health. In this respect, AB may be a moderator of PWB. Because employees consider AB as a source of injustice, disrespect, and distrust, these employees are likely to have low levels PWB (Tepper, 2000). Naturally, employees who are lower in AB and high in their OBES will be high in their PWB. Despite the importance of the relationship between OBES and PWB apart from a research work conducted (Pierce et al., 2016), scholars in the fields of organizational behavior have rarely focused on PWB. Especially, while the literature with respect to potential mediators and moderators of the relationship is still in its infancy, it is slowly growing. For instance, Pierce and colleagues (2016) conducted a study with two samples consist of students, employees at a Mid-Western US university and they found that job-related engagement moderated the association between OBSE and subjective happiness. However, the number of studies that investigated the relationship remains small.

Considering this point, the main concern of this study is to find out the association among OBES, AB, and PWB among teachers in the education sector in the light of the above-mentioned theories and approaches. The paper has an objective to highlight and contributed in the existing literature related to these constructs in a multiple way. Firstly, current study aimed to answer a relevant question– whether a spillover influenced may be occurred due to the influence of OBSE upon PWB? Last but not the least, a potential gap has been found in the existing literature regarding whether AB moderates the association between OBSE and employee well-being. Therefore, we focused in this study on the gap and asserted the moderating role of AB in the positive association among PWB and OBES. Our intention is to contribute to both organizational theory and practice by enriching the current knowledge about the potential moderators of PWB so that employees' health can be more significantly increased. The main research question is "Is there a moderating role of AB in the association between OBES and employees' PWB?"

Literature Review

Scheier et al. (1994) defines self-esteem is a sense of self-worth, which carries the implication that one will be accepted rather than rejected by others, and that one is not failure in one's life". The concept of OBSE is one of the constructs that is based on self-esteem and which may be extracted job-related experiences within organization (Pierce et al., 2016). OBSE is defined as "the degree to which an individual believes him/herself to be capable, significant, and worthy as an organizational member" (Pierce and Gardner, 2004). Therefore, individuals high in OBSE should perceive themselves as "important, meaningful, effectual, and worthwhile within their employing organization" (Pierce et al., 1989).

Diener et al. (2003), PWB, "people's emotional and cognitive evaluations of their lives, includes what lay people call happiness, peace, fulfillment, and life satisfaction". PWB is a broad concept that measured the life satisfaction, happiness, and self-rated anxiety (Warr, Cook, & Wall, 1979). Rook (1984) found that the negative side of social interaction has a negative impact on PWB. According to Brown and Ryan (2003), mindfulness might contribute to the well-being and happiness in a direct way. Crocker et al. (1994) determined that the subscales of collective self-esteem were highly correlated with the well-being measures. Also, O'Donoghue et al. (2016) ascertained that the perception of abusive leadership correlated negatively with employee well-being.

According to the Tepper (2000), AB refers to "subordinates' perceptions of the extent to which supervisors engage in the sustained display of hostile verbal and nonverbal behaviors, excluding physical contact". AB's outcomes are associated with the success and survival of organizations. Besides, the outcomes are interrelated to happiness and cognitive health of their employees (Martinko et al., 2013). Similarly, Tepper (2007) has examined a set of researched variables which overlap with AB and found that AB diminished PWB. In addition, Kernan et al. (2011) found that AB affected positively 'negative well-being' whereas Hobman et al. (2009) found a negative relationship between AB and psychological well-being. Also, Scheuer (2013) determined that demand appraisals and coping behavior were significant mediators of the relationship between AB and well -being.

The moderating role of AB

Another study reported a positive connection in OBSE and PWB according to Disposition Approach (Staw et al., 1986), Spillover effect (Lambert, 1990) or Need Theories (Maslow, 1943). Disposition Approach (Staw & Ross, 1985; Staw et al., 1986) includes "the measurement of personal characteristics and the assumption that such measures can aid in explaining individual attitudes and behavior. Although distinctions are sometimes made between the concepts of personal dispositions, traits, personalities, and individual characteristics, these terms are used almost interchangeably in the literature". In this respect, it is possible to describe individuals' behaviors across situations. Consequently, the dispositional trait of OBSE shapes PWB of individuals and so those high in OBSE

is likely to have higher psychological well-being compared with those low in OBSE.

According to spillover effect, OBSE spills over onto general well-being (Pierce et al., 2016). Spillover effect includes "the transfers of one's functioning (e.g. attitudes, emotions, behavior) from one domain to another, and where functioning in one domain (e.g. home) is influenced by a person's functioning and experiences in a different domain (e.g. work)" (Lampert, 1990; Pierce et al., 2016: 185). Due to this spillover effect, if employees perceive then that perception will transfer another domain (general health), and consequently, will impact positively PWB.

There are 5 sets of goals (basic or deficiency needs) that are associated with one another and are organized in a system of prepotency in A Theory of Human Motivation by Maslow (1943). Satisfaction of the self-esteem causes "feelings of self-confidence, worth, strength, capability and adequacy of being useful and necessary in the world". Self-concept that is shaped around an individuals' work and OBSE will spill over, affecting an individuals' subjective and PWB, in other words, positive attitude towards life (Widmer et al., 2012; Pierce et al., 2016). Personality dispositions or traits like neuroticism, self-esteem, and extraversion can significantly affect subjective well-being (Diener et al., 2003). According to Pierce and Gardner (2004), OBSE is associated with "job satisfaction, organizational commitment, motivation, citizenship behavior, in-role performance, and turnover intentions as well as, other organization-related attitudes and behaviors". It follows that;

H_1: Organization-based self-esteem will be positively related to psychological well-being.

Theory X of McGregor (1960) says that some managers assume people are sluggish, and have lower level of ambition and responsibility. So these managers can behave their workers badly and abusive. Thus, the employees' PWB is negatively affected. Adams's (1965) Justice Theory refers to "the extent to which employees perceive workplace procedures, interactions, and outcomes to be fair in nature. These perceptions can influence attitudes and behavior for good or ill, in turn having a positive or negative impact on employee performance and the organization's success". Justice theory ensures some understanding into why AB causes negative influences on employees' attitudes and well-being. Interpersonal justice, one type of justice, is related to the interpersonal aspect of fairness and is especially considerable in comprehension the negative consequences of supervisor abuse (Kernan et al., 2011).

O'Donoghue and colleagues (2016) determined that AB is negatively associated with employee well-being (i.e. job satisfaction & engagement). According to Tepper (2000), employees consider AB as a reason of injustice that, in turn, has conclusions for their attitudes and well-being. AB affects negatively employees' PWB and behaviors (Chan & McAllister, 2014: 44). It follows that;

H_2: AB will be moderate the connection between PWB and OBSE such that those lower in AB and who are highly their OBSE will be high their PWB.

Methods

Sample and Procedure

Present study has been performed by using survey method. The data are collected by the purposive sampling method. Survey questionnaires were distributed to 600 teachers, who actively work at the public colleges within Pakistan between January-December 2015-16. We received responses from 532 teachers with a response rate of 89%. However, 16 of them were discarded due to the excessive missing cases. Thus, participants in the study are 516 teachers.

The demographic characteristics of our participants were as follows: 59.3% were female and 40.7% were male; 37.2% were aged 22–25 years old, 56.8% were aged 26–35 years old, and 6% were aged from 36 years old or more; 66.3% were single, and 33.7% were married; 40.1% had been working in this field of employment from for 1 years or less, 57% for 1–10 years, and 2.9% for 11 years or more.

Measures

The selected variables for presented studies have been adopted from previous well known studies and evaluated by using five-point Likert guidelines. Mean scale scores were used for these scales.

Organization-based self-esteem (OBSE)

OBSE is adopted from Pierce et al. (1989) study and that scale has ten items. The instrument was adapted into the Pakistan language and was found to be both valid and reliable. An example item is "I am trusted in my employing organization."

Psychological well-being (PWB)

PWB has been used in current study by taking eight-item as well as the flourishing scale (PWB scale), developed by Diener et al. (2010). The instrument was adapted into the Pakistan language and was found to be both valid and reliable. An example item is "I am engaged and interested in my daily activities."

AB (AS)

AB was measured using the fifteen-item the AB scale, developed by Tepper (2000). The instrument was adapted into the Pakistan language and was found to be both valid and reliable. An example item is "My manager reminds me of my past mistakes and failures."

Control variables

The effects of age, gender marital status and tenure on work-related subjective well-being and PWB were examined (Austrom, Baldwin & Macy, 1988; Wilks & Neto, 2013).

Data Analysis and Results

This study used IBM SPSS 22.0 for data analysis. Firstly, authors of this study had performed an overall "exploratory factor analysis (EFA)" to assess the construct validity of them as the scales were used with a new sample. The best fit of data was obtained with an EFA with a Varimax rotation and screen pilot showed that tree factors should be retained. As a result of the EFA, the analysis showed that all scales were valid. The EFA identified 32 items in the 3-factor categories of OBSE, PWB, and AB. A cross-loading item of AB (fifth item in original scale) was excluded from analysis. Thus, these factors explained 60.26% of total variance in participants' responses. The Chronbach's alphas of all construct (all $\alpha > .70$) are in Table 1 (Muqadas et al., 2017; Rahman et al., 2017).

Means, standard deviations, and correlations for all variables are indicated in Table 1. Table 1 shows that the independent variable OBSE has strong positive relations with the dependent variable PWB. Also, the moderator variable AB has moderate negative relations with the dependent variable PWB. Therefore, these correlations provide some preliminary evidence that organizational-based self-esteem is positively related to PWB.

To test hypotheses, hierarchical regression analysis was used (see Table 2). Firstly, control variables (gender, age, marital status, tenure) was entered the regression. Secondly, OBSE and AB were added the regression to verify hypothesis 1. In Step 2, it was found that OBSE was strongly predictive of PWB. On the other hand, it was found that AB was no predictive of PWB. Thus, hypothesis 1 is well supported ($\beta=0.497$; $p<0.001$). In Step 3, the interaction term (OBSE x AB) was entered the regression to confirm the moderating effect of AB on the relationship between OBSE and PWB. Hypothesis 2 is not supported by the regression analysis results in Step 3 ($\beta=0.015$; $p>0.05$).

Table 1
Correlations, means, and standard deviations

Variable	Mean	S.D.	1	2	3	4	5	6	7
1.Gender	1.52	.41							
2.Age	1.62	.52	-.28**						
3.Marital status	1.31	.44	-.00	.23**					
4.Tenure	1.53	.51	-.13	.41**	.11*				
5.OBSE	4.18	.50	-.04	.04	.05	.07	(.91)		
6.AS	1.10	.85	-.01	.01	.01	.10	-.28**	(.77)	
7.PWB	4.41	.80	.01	.03	.06	.04	.51**	-.17**	(.86)

*"Notes: OBSE: Organization-based self-esteem; AS: AB; PWB: Psychological well-being. Cronbach's alphas appear on the diagonal for multiple item measures. n=486; *p<0.05; **p<0.01. 1 = male, 2 = female; 1 = single, 2 = married."*

Table 2
Results of Regression Analysis

Variable	Psychological well-being (PWB)		
	Step 1	Step 2	Step 3
Gender	.01	.03	.03
Age	.01	.01	.01
Marital status	.06	.04	.04
Tenure	.03	.01	.01
Organization-based self-esteem (OBSE)		.50***	.50***
AB (AS)		-.03	-.03
Interaction term (OBSE and AS)			.02
Total R2	.005	.259***	.259***
Δ in R2		.254***	.000
Δ in F	.624	82.136***	.131

*n = 486; ***p<0.001*

Discussion and Conclusion

The findings reveal that OBSE is a significant determinant of employees' PWB. This finding is consistent with Tang and Gilbert (1994); Carson et al. (1997); Diener et al. (2003), Pierce and Gardner (2004) and Pierce et al. (2016). Employees' self-concept constituted basis work and OBSE positively spills over and affect their PWB comprising "such indicators as life satisfaction, flourishing, happiness, positive and negative affect, and the ratio of positive to negative affect" (Pierce et al., 2016). Indeed, situational factors (e.g., messages that may be sent by using various organizational contextual factors specifically related to job and organizational design) have a significant impact on both directly affecting PWB via effects on OBSE, and interactively with the disposition (Pierce et al., 2016). Given these explanations, it is important to create organizational climate increasing OBSE to enhance PWB.

Also, the findings suggest that there is a negative relationship between AB and PWB. This finding is consistent with Tepper (2007); Hobman et al. (2009); Kernan et al. (2011); Martinko et al. (2013), O'Donoghue et al. (2016). With decreases in AB, that is the dark side of leadership, employees' PWB may increase. On the other hand, it is not supported the hypothesis suggesting that AB may play a moderating role in the relationship between OBSE and PWB. Interaction ascertains that AB is not affected the positive spillover effects of OBSE on PWB. In our study, the directions of relationships between AB and moderator, and dependent variables are negative, but the level of AB is quite low. The level of quite low may lead to no significance of interaction effect.

Given the findings, it may be concluded that managers do not exhibit AB on teachers at their organizations. Moreover, the collecting from teachers that was employed at colleges s in the levels of the different teaching of the data may lead to being non-significant the moderator role of AB. Additionally, it may be stated that employees high in OBSE, and trusting their skills pay no mind much to the AB behaviors of managers. Therefore, why AB did not moderate the relationship between OBSE and employee well-being could be examined in further research. In conclusion, the findings are important for managers who are responsible for human resource management. Accordingly, they should focus on variables increasing, or decreasing PWB of employees who contribute to organizational success because while the low AB and high OBSE may conclude high performance, high interest to job and be decreasing of health costs, the opposite of this situation may deteriorate both employees' psychological and physical health (e.g., heart health).

Naturally, there are some limitations of this study. Firstly, this study is a cross-sectional study (same measurement time effect) and the responses are measured as self-reported (common rater effect), so the data is susceptible to common source bias (Podsakoff et al., 2003). Consequently, this common source bias may lead to inflated relationships.

The result of "Harman's single-factor test" (Harman, 1979) conducted to assess the data

for common method variance is 25.173 (the result of test < 50). Also, all items from each of the constructs were entered an EFA and were extracted three factors and one general factor does not account for a majority of the covariance between the measures. Thus, it can be said that systematic error variance shared among variables measured is not (Harman, 1979). Also, we suggest longitudinal designs and data collected from different sources (e.g., colleagues and subordinates) for next studies. Second, the data of this study is obtained from public education sector (scope limitation). Due to this limitation, our findings are not generalized to other sectors (e.g., IT, health and military). In this regard, in further studies, the data can be selected from different professions, unlike teachers. Moreover, these relationships may be examined comparatively public and private sectors. Finally, it is a content limitation. Future directions beyond this study may include testing additional variables affecting organizational outputs (e.g., performance, work attendance (Pierce et al., 2016), presenteeism, absenteeism), and possible interactive variables of such a nature of association; for example, level of stress, type of work, personality traits organizational climate, organizational support (Pierce et al., 2016).

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TOTAL QUALITY MANAGEMENT IN SURGICAL AND MEDICAL EQUIPMENT MANUFACTURING INDUSTRY IN PAKISTAN

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Abstract

Total quality management (TQM) is an approach in which all the people in an organization are involved in constantly improving the quality of product, service and business process. The functioning of surgical and medical equipment manufacturing industry is much dependent upon TQM. The purpose of this study is to examine the level of adoption of TQM practice in surgical and medical equipment manufacturing industry in Pakistan. A questionnaire based survey was conducted among 200 organizations. The study revealed that 52 percent organizations have implemented TQM, but deficiencies have been found in implementation of required management methods, evaluation of customer satisfaction and application of seven quality control / quality improvement techniques. This does not allow to consider the organizations as perfect TQM organizations. The findings may help organizations to focus on efforts required for implementation of TQM system perfectly. The research and findings are limited to a specific segment of manufacturing industry, so findings cannot be generalized to the whole manufacturing industry in Pakistan.

Keywords: Total Quality Management, Quality Control, Medical Equipment Manufacturing, Customer Satisfaction.

JEL Classification: Z000

Introduction

Pakistan and Germany are the largest centers around the globe for the production of surgical and medical instruments. This is the sector where quality holds pivotal position. As per report published by Rawalpindi Chamber of Commerce and Industry (RCCI, 2010), Pakistani surgical instruments industry is in a serious confrontation with German industry which is excellently equipped with quality processes and systems. In the last decade, China, Malaysia, Korea, Poland, Hungry, and India have entered the international market as growing surgical instruments manufacturers. The issue of quality

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is further becoming more serious with the entry of new entrants from other countries. Conformance to standards, testing and certifications will become more critical for surgical and medical equipment manufacturing industry to move up the value chain. Rapidly changing global medical requirements and protectionist policies of the developed world also stands in the way of Pakistani industry.

As per Surgical Instrument Manufacturers Association of Pakistan (SIMAP, 2016), about 100 Million surgical instruments are manufactured annually in Pakistan and 80 – 90 % of production is exported to over 140 countries. The value of this export for financial year 2014 – 2015 was US $ 339 Million. This sector comprises of approximately 2500 production units including large, medium and small sized manufacturing units. As the industry is flexible in following American, German, British or any international standards/ specifications, the United States and European countries are the leading buyers of Pakistan made surgical instruments.

With reference to quality management, most of the organizations in Pakistan claim that they practice total quality management (TQM). Here arises the question that up to what extent for management of the organizations understand the TQM principles and practices, whether a complete understanding exists and the tools and techniques that are considered essential for qualification are implemented. TQM principles and practices encompass commitment of top management towards quality, focus on customer satisfaction, employee involvement and their training and application of quality control / quality improvement techniques (Yusof & Aspinwall, 2000; Dale, 2003). Seven quality control / quality improvement techniques include check sheet, histogram, flow chart, control chart, scatter diagram, Pareto analysis and cause-and-effect diagram (Evans & Lindsay, 2011). No research is available on this aspect; therefore, it was appropriate to set the objective of the research as to evaluate the level of adoption of TQM in surgical and medical equipment manufacturing industry in Pakistan.

Literature Review

Quality management evolved in manufacturing environments and finds its roots in early 1930s as discussed by American industrial thinkers (Huggins, 1998). Statistical quality control introduced by Shewhart showed to be a narrow approach which has now been expanded to more wider holistic approach with the name Total Quality Management (TQM) (Dahlgaard-Park, Bergman, & Hellgren, 2001). After W. Shewhart and Huggins (1998) identifies W. Edwards Deming, Joseph M. Juran, A.V. Feigenbaum, Kaoru Ishikawa, and Philip Crosby as pioneering and renowned theorists in the field of TQM. He further credits A. V. Feigenbaum as the originator of the term "Total Quality Control" which was the title of his book published in 1961. The Japanese adopted Feigenbaum's concept with the name as "companywide quality control". U.S. Naval Air Systems Command developed the term "total quality management" parallel to Japanese-style approach to quality improvement that is based on participation of all employees of an organization in improving goods, services and the organizational culture. Theoretical and practical application of work by above mentioned management scientists

led to the development of strategies which enable firms to achieve quality products. These strategies include Total Quality Management (TQM), benchmarking, business process reengineering (BPR), Just-in-Time (JIT), and Six Sigma among others. According to Karia and Asaari (2006), the TQM presented itself as a dominant strategy with worldwide acceptance and adoption to ensure business excellence and quality improvement. This statement receives a good countenance by a number of studies published (Lee, 2002; Beheshti & Lollar, 2003; Hung, 2004; Yeung & Armstrong, 2005).

For a TQM approach, Dale (2003) articulates that superior level of quality can be achieved with the implementation of the principles for quality management in all functions of an organization. It should include the higher level of customer integration with the business. He further elaborates the main elements of TQM as the commitment of top management towards quality, application of quality management techniques, employee involvement, training, feedback from customers, measurement the results and building the culture in organization for continual improvement. Jablonski (1991) has identified six elements of TQM as customer focus, process and result focus, prevention focus, mobilization of expertise of workforce, fact based decision-making and feedback. Martins and Toledo (2000) are of similar opinion.

Talha (2004) views TQM encompassing managerial approaches incorporating product quality, quality improvement, quality assurance and process control through involvement of total organization and its employees. Homologous to this approach Evans (2005) describes TQM as a people focused holistic approach that necessitates continually increasing the customer satisfaction while continually lowering the real cost by involvement of all employees, departments and suppliers of the organization. Bergman and Klefsjo (2007) express fairly similar structure of the concept meaning TQM as a constant endeavor to fulfill, and preferably exceed the customer needs and expectations at the lowest cost, by continuous improvement work, to which all involved are committed, focusing on the process in the organization. Dean and Brown (1994) have characterized total quality by its principles, practices and techniques. They emphasize on principles as foundation of the philosophy, practices as activities by which the principles are implemented, and techniques as tools and approaches that help managers and employees make the practices effective. In the similar context, TQM can be seen comprising three core elements described in the research work as fundamental principles, tools and result (Ciampa, 1992); principles, procedures and tools (Shea & Gobeli, 1995); core values, techniques and tools (Hellsten & Klefsjo, 2000).

By reviewing the available literature, it can be understood that at present there is generally a similar opinion about basic principles and techniques for implementation of TQM in an organization. In the retrospect, the need for adoption of quality, quality management and the total quality management in Japanese organizations arose due to serious competition in markets and rejection of their products. Success of Japanese organizations created a threat to the Western organizations and this led the West to recognize the need for quality management (Evans, 2005).

Mellahi and Eyuboglu (2001) are of the opinion that popularity, adoption and implementation of the concept of TQM seem to be limited to firms of developed countries of the West and Japan, and with a little emphasis on firms in developing and third world countries. However, many organizations throughout the world have had very positive experiences and benefits from adopting quality management. Much can be learned from those which have enjoyed sustainable benefits (Brown, 2013).

Example of Turkey is worthy of consideration. Research by Mellahi and Eyuboglu (2001) revealed that Turkish firms decided to implement TQM due to volatile and uncertain operating environment prevailing in the country after the trade liberalization era in the 1980s. In 1989, the entry of Turkish firms into European Common Market was faced with severe competition and difficulties in achieving customer satisfaction and this became an important drive for implementation of quality management (Turker, 2008).

The literature reviewed led in developing research methodology and the questionnaire for the purpose of study.

Methodology

The objective of the research was to analyze and determine the level of adoption of TQM practice among the surgical and medical instrument manufacturing industry in Pakistan, the research necessitated a survey-based data collection. Zikmund (2003) is of opinion that among several research methods, survey-based research discloses that what is actually happening in a business activity and what are the reasons for any deficiency.

Pakistan surgical instrument manufacturing industry is divided into four major segments depending upon the organization's annual revenue and investment in production equipment as shown in Table 1 (RCCI, 2010). The sample for the survey was taken from 2300 firms registered with Surgical Instrument Manufacturers Association of Pakistan (SIMAP) in the year 2013. As the objective was to study a large sized industry, judgment sampling method was considered appropriate. According to Saunders, Lewis, and Thornhill (2011) purposive or judgmental sampling enables a researcher to select cases that best enables him to answer his research question and to meet his objectives. Neuman (2005) suggests that this type of sampling is used when researcher wishes to select the cases that are particularly informative. 200 organizations were taken as sample for study. Number of organizations representing all the four segments of population are shown in Table 2. Furthermore, the study was only to determine the level of adoption of TQM practice in this sector of manufacturing industry, there was no requirement for hypothesis and its testing.

Table 1

Segmentation of surgical and medical equipment manufacturing industry in Pakistan

Type of organization	Annual Revenue Rs. Mil.	Investment in Equipment Rs. Mil.
Large	60 - 100	50 - 100
Medium	10 - 60	10 - 25
Small	1 - 10	1 - 5
Vendors	1 – 1.5	Up to 1

Table 2

Segment-wise composition of the sample

Type of Organization	No. of Registered Organizations	Sample for Study	%
LARGE: High sales segment	30	20	10
MEDIUM: Medium sales segment	50	30	15
SMALL: Low sales segment	150	40	20
VENDOR Segment	2000	110	55
Total		200	100

A comprehensive questionnaire was developed to obtain information from the sample firms. The construct of the questionnaire is shown in Table 3. Questionnaire was arranged in five sections. General information about company is recorded in the first section and the second section aimed at evaluating the extent of adoption of quality management systems and approaches. The third section was to study the commitment of top management towards quality, the fourth section to estimate the study of customer satisfaction by organizations and the fifth section evaluated the level of implementation of quality control / quality improvement techniques. A pilot survey among a few firms helped in administering the minor changes in the questionnaire. A questionnaire was given to each firm.

Table 3
Construct used for development of questionnaire for survey

Section	Element of TQM	Description
1	Information about company	Name, type and size
2	Adoption of quality management system	- Formal QA department, quality manual, -ISO 9001 certification, -TQM, benchmarking, six sigma.
3	Commitment of top management	-Quality circles, training, preventive maintenance, employee suggestion scheme, quality cost. - Communication to all employees emphasizing on product quality.
4	Customer satisfaction	Frequency of surveys to get customer feedback.
5	Use of quality control/ quality management techniques	Seven statistical techniques as check sheet, histogram scatter diagram, flowchart, control chart, Pareto analysis, cause and effect diagram.

Survey Results

With reference to the construct of the questionnaire, results of data collected against each question are analyzed. This analysis of survey results will provide basis for discussion and conclusions.

Organization's intention towards TQM

ISO 9000: 2005 defines quality management as coordinated activities to direct and control an organization with regard to quality. The foundation for an effective quality management system is the establishment of a document named as "quality manual" (Lo, Humphreys, & Sculli, 2001). It outlines the organization's quality policy and practices directed towards achieving the improvement in customer satisfaction. ISO 9001 standards is to assist organizations of all types and sizes to implement and operate an effective quality management system (Wahid & Corner, 2009). The qualification of an organization for ISO 9001 certificate indicates its commitment to the implementation of TQM. Data analysis presented in Table 4 and Table 5 exhibit that a formal TQM is in place in 52 percent organizations, out of which 20 percent are ISO 9001 certified. In 35 percent organizations, ISO 9001 Standards are under implementation. Further 18 percent organizations have recognized the necessity of TQM for future. Presently 55 percent of the surveyed organizations have developed a quality manual.

Table 4

Level of adoption of quality management systems

Quality Management System	Yes %	No %
Established QC / QA department	52	48
Established quality Manual	55	45
Obtained ISO 9001 certification	20	80
In the process of obtaining ISO 9001 certification	35	65

Table 5

Level of adoption of quality related approaches

Quality Management Approach	% of organizations				
	Not heard about	Heard about	Thinking about	Started	Established
TQM	5	14	18	11	52
Benchmarking	12	8	10	32	38
Six Sigma	57	33	10	0	0

Commitment of top management

Research work on TQM reveals that commitment of top management towards quality is one of the essential characteristics of the quality focused organizations (Witcher, 1994; Tari, 2005; Fotopoulos & Psomas, 2009). In their research work, Boon, Arumugam, and Hwa (2005) articulate that complete involvement of top management in the TQM programme of an organization ensures better business performance. Along with quality improvement and customer satisfaction, the organization achieves improved level of motivation and morale of employees, cost efficiency, productivity and competitiveness and financial benefits (Beheshti & Lollar, 2003).

Jablonski (1991) expresses that committing a subordinate's time and corporate funds to TQM initiative are inadequate. Management commitment concerns with committing organization's resources and executive's own time. Top management has to necessarily allocate a considerable amount of time for a successful TQM programme.

Survey results reveal that top management of 64 percent organizations has verbally or in written form communicated to its employees about the quality of their product and satisfaction of

customer during last one year. Survey results shown in Table 6 further endorse this figure that 68 percent organizations emphasize on training of employees and 74 percent organizations encourage the contribution of employee's suggestions.

Table 6
Level of application of different management methods

Management Method	Yes %	No %	Management Method	Yes %	No %
Quality circles	18	82	Employee Suggestion Scheme	74	26
Training of Employee	68	32	Analysis of quality Costs	6	94
Preventive Maintenance	45	55			

Customer satisfaction

The success of an organization largely depends upon the degree of its ability to satisfy its customers. Deming (1986) placed the customer satisfaction as an important parameter to measure the outcome of TQM practice in an organization. This theory has been corroborated by Sandholm (2000) and Bergman and Klefsjo (2007). A customer feels satisfied or dissatisfied by a product or service, and he develops these feelings during or after the usage of that product or service (Kotler & Armstrong, 2001; Kotler & Keller, 2006). Focus on customer satisfaction is an essential element of TQM principles (Yusof & Aspinwall, 2000). Measurement of customer satisfaction holds an important position in determining the status of TQM in an organization.

The frequency of survey by the sample organizations for assessing customer satisfaction is shown in Table 7. Organizations which have reported that they conduct this survey twice a year are 43 percent of sample. However, 25 percent organizations conduct customer satisfaction survey more frequently, i.e., after every three months or after every transaction.

Table 7
Frequency of surveys conducted by organizations to get feedback about customer satisfaction

Frequency of Survey	%
No survey	22
Survey after every year	10
Survey after every 6 month	43
Survey after every 3 month	9
Feedback collect after every transaction	16

Implementation of quality control / quality improvement techniques

Implementation of seven statistical techniques is considered as a common characteristic of a TQM organization (Al-Khalifa & Aspinwall, 2000; Dale, 2003; Fotopoulos & Psomas, 2009). These techniques are check sheet, histogram, flow chart, control chart, scatter diagram, Pareto analysis and cause-and-effect diagram. Japanese call them 'Seven QC Tools', and they have been used for decades to support quality improvement efforts (Evans & Lindsay, 2011). Table 8 presents the percentage of organizations applying quality control/quality improvement techniques. The check sheet and flow chart have been found as the most popular techniques with 58 percent and 51 percent applicability respectively. Control chart is the technique which has got 33 percent applicability. It is evident from the data that only a few organizations are familiar with the usage of cause-and-effect diagram.

Table 8
Percentage of organizations applying quality control / quality improvement techniques

Technique	Yes %	No %	Technique	Yes %	No %
Check Sheet	58	42	Control Chart	33	67
Histogram	23	77	Pareto Analysis	13	87
Scatter Diagram	12	88	Cause-and-effect Diagram	6	94
Flow Chart	51	49			

Discussion

Results of survey analysis exhibit a good scenario of TQM awareness among surgical and medical equipment manufacturing industry in Pakistan. At present 52 percent organizations have established formal TQM including 20 percent organizations having ISO 9001 Standards certification. Further 35 percent organizations are in the process of obtaining ISO 9001 Standards certification. Although these are quite encouraging figures and show a fairly good percentage of organizations implementing TQM, but more than half the organizations are ignoring ISO 9001 Standards certification which is a reliable indication of the organization's intention and commitment towards TQM.

In 64 percent organizations employees are communicated about product quality and customer satisfaction. Although it is a reasonable figure, but it also reveals that 36 percent organizations are lacking this essential element of a TQM organization. However, cross analysis of data also shows good popularity of employee suggestion schemes and employee training programs.

Customer satisfaction can be determined by the feedback provided by the customers who are real judges for quality of product. 78 percent of the organizations collect feedback from their

customers at different frequencies. But worthy of attention are those 22 percent organizations which do not conduct any survey to get customer feedback, which in turn means organization's poor inclination to enhance customer satisfaction.

With respect to implementation of quality control / quality improvement techniques, the check sheet and flow chart have been found commonly used techniques. The other five useful techniques are practiced by fewer organizations. This can be due to unawareness of management about the advantages of these techniques, or managers have not understood the necessity of these techniques. Specifically, managers are not familiar with usage of Pareto Analysis and cause-and-effect diagram which usually result 50 to 80 percent improvement in any quality problem. Training of employees can help in resolving this issue. The contents of training programme for employees need major changes giving more focus on quality control / quality improvement techniques among other elements of training.

Conclusion and Managerial Implications

Pakistan is one of the two largest centers in the world for production of surgical and medical equipment. The other center is Germany, to which Pakistan faces an intense competition in quality. The objective of research was to examine the level at which the quality management is being practiced in surgical and medical instrument manufacturing industry in Pakistan. Present scenario of TQM in this sector in Pakistan in encouraging. Out of 2500 large, medium and small production units, 52 percent organizations are practicing a formal TQM. This portrait a reasonable intention, enthusiasm and commitment to TQM. This level can be good at the moment to sustain the share in global market, but cannot be considered as a holistic approach to quality management, so called TQM.

Organizations have been found aware of the importance of customer satisfaction. Management communicates to the employees of the organization about their product quality and customer satisfaction. Implementation of seven quality control / quality improvement techniques is the essential element of an organization adopting TQM. These include check sheet, histogram, flow chart, control chart, scatter diagram, Pareto analysis and cause-and-effect diagram. The results of survey shown that only two techniques, check sheet and flow chart, have got reasonable acceptance among the organizations. The usage of other five techniques, which are histogram, scatter diagram, control chart, Pareto analysis and cause-and-effect diagram, is also an essential element of a TQM organization, but the data reveal a small percentage of sample organizations applying these techniques. Specifically, the small degree of application of control chart and Pareto analysis cannot be considered as satisfactory. Although, 68 percent organizations arrange training for their employees, the low percentage of usage of seven quality control/quality improvement techniques exhibits a lack of complete understanding and rather ignorance of TQM principles among the management of organizations. Top management should arrange training programs for employees which necessarily include exercises on quality control / quality improvement techniques.

In the years to come, the surgical and medical equipment manufacturing industry in Pakistan will face higher requirements for quality, especially when it is trying to diversify into more value added products and enter into more sophisticated markets. The issue of quality will become more serious with the entry of manufacturers from other countries such as Malaysia, Poland, Hungry, China, Korea and India.

In order to meet the present as well as future requirements of quality, it is of great value that the management of the industry must have a strong affiliation with TQM principles and practices. Managers should understand the TQM principles and have a proper knowledge and skills required to manage TQM in changing scenario. They must be committed and provide necessary resources for implementation of TQM. Organizations which are lacking quality management systems in any way, must understand the necessity of TQM to maintain their share in global market.

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MODELING DAILY CLOSING PRICE VOLATILITY USING SYMMETRIC GARCH

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Abstract

Modeling and forecasting the volatility of daliy closing price series is a significant area of financial econometrics since last few decades. Due to regional integration of the financial markets, investors not only interested in investing in their own countries stock markets but also investing in another countries stock markets. The aim of this study is to investigate the more volatile market and modelling the volatility.We use daily closing index of KSE-100 (Pakistan), BSESN (India) and CSE (Sri Lanka) as they are the member of SAARC countries covering the period 1st January, 2011 to 30th November, 2016. Empirical analysis shows that GARCH-in- mean model is found insignificant for BSESN and CSE. It reveals that there is no relationship between risk and expected return. Furthermore, CSE is more persistent stock market than the other two, but KSE-100 is highly volatile during the study period. GARCH-in-mean model with log variance in mean return equation is suggested for out-sample forecast of KSE-100. On the other hand, in CSE IGARCH and for BSESN any one from IGARCH and GARCH are suggested suitable model.

Keywords: Modeling , Stock Market, Empirical Analysis, Modeling Volatility.

JEL Classification: G100

Introduction

Modeling and forecasting financial data, such as stock market data, inflation rates, foreign exchange rates, etc. are very difficult task due to volatility. The nature and behaviour of the stock market returns are attractive to the researchers and market practitioner to forecast such variables. It has been observed that financial variables vary considerably, for some periods of time, though the forecast errors are relatively small but for other periods of time they are large. This suggested that the variation in forecast errors is not constant throughout, but varies from one period to another period, that is, there is some kind of autocorrelation present in the variance of forecast errors.

Over the past few decades for forecasting of financial time series and econometric, Box–Jenkins type of model (Autoregressive Integrated Moving Average (ARIMA)) was used in which

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variance is assumed to be constant. Modeling volatility is an imperative issue in stock markets and it has drawn the attention of researchers and market experts from the last few decades. There are numerous studies and different methods which have discussed the instability in financial series. As the financial data have non-concstant variance, Engle (1982) proposed the ARCH class of model to modeling conditional variance. Subsequently, Bollerslev (1986) improved ARCH model and developed Generalized ARCH (GARCH) model which avoid large lag length in conditional variance and gave more parsimonious model. Engle, Lilien and Robins (1987) and Glosten, Jagannathan, and Runkle (1993), explored that volatility cannot be directly observed, it has some characteristics such as volatility clustering and leverage effect etc.

Stock market is a financial institution of a country which provides an opportunity to individual and institutional investor for investment. Stock market plays an important contribution in the economic growth and development of a country. It is considered to be a primary barometer of a country's economic stability, therefore, rising prices related with the increased business asset. Stock markets promote the exchange of security between customer and dealer by minimizing the risk of investment. Basically, stock market consist of stocks and shares are issued by the company to its buyer to be one of the owners of the company. The overall market movement can be measured by the statistical composite measure called index.

With this perspective, this study compares the persistency of KSE-100 with BSESN and CSE and develops suitable conditional volatility forecast model for each stock market. In addition to this, it also investigated the relationship between the risk premium parameter on its own volatility. For empirical estimation, data from 1st January, 2011 to 30th November 2016 a total of 1543 points of three South Asian countries, namely, India, Pakistan, and Sri Lanka are selected.

The outline of this paper is as follows. Section 2 provides a review of selected literature. Section 3 describes the brief introduction to the family of GARCH model, section 4 deals with data analysis and section 5 summarizes the conclusion.

Literature Review

P. Srinivasan (2011), applied FGARCH models namely GARCH, EAGRCH and TGARCH to forecast the conditional volatility of S& P500. According to their findings EGARCH and TGARCH model performed better than simple GARCH model.

The daily data of nineteen Arab countries were selected from 1st January 2000 to 19th November 2011 for modelling the exchange rate (Zakaria & Abdalla, 2012). Empirical analysis showed that 10 out of 19 countries currencies' representing volatility are an explosive process and also majority of currencies supporting that the negative shock follows high volatility for the next period than a positive shock.

Iulian and Ecaterina (2012), compared the changes in variance structure using seven Romanian trading companies data listed on the Bucharest Stock Exchange and indices of three markets, namely, BET, BET-XT and BET-C for the period 1997-2012, daily, weekly and monthly basis. GARCH-in–Mean model was applied to find the structural changes in volatility for selected periods with different frequencies and found that GARCH-in–Mean model performed well in weekly and monthly data. Şebnem and Fidan (2013) modelled daily returns of the Istanbul stock market using non-parametric GARCH model (Bühlmann & McNeill, 2002) instead of using parametric lagged values and their lagged volatility. The parameters were estimated using non-linear maximum likelihood method. They found that if the stock returns distribution is unknown or heavy tail then non-parametric GARCH model gave better estimates of the volatility. In the same year, Mohd. Aminul Islam (2013), used Family of Symmetric GARCH models for Asian markets such as KLSE (Malysia), JKSE (Indonesia) and STI (Singapore) to estimate the volatility. Furthermore, risk return relationship was also model via GARCH in mean process. Experimental analysis showd that all markets have positive risk return relationship. Moreover, Indonesian market was highly volatile than the other two selected markets.

The family of univariate GARCH; simple GARCH, Power-GARCH and component GARCH and multivariate GARCH-BEKK methods were applied to the polish economy (Fiszeder and Orzeszko, 2012). Forecasting performance of top markets of Asia, America and the United Kingdom were compared using symmetric and asymmetric models by Jiang and Forsberg (2012). Based on empirical analysis, it was found that selected models did not perform well due to economical, political and financial global changes.

Beside these, there are abundant literature which discussed risk-return relationship using GARCH-in-mean model, NYSE stock market by Bae et al. (2007) and Appiah and Menyah (2003) for eleven African stocks returns. A Hybrid financial system of KSE-100 index developed by Fatima and Hussain (2008), in their proposed system first they used the GARCH model to capture volatility and then the estimates of volatile model was given as input to ANN model. Their suggested hybrid system outplayed then the standard GARCH model and ANN model.

Introduction To Family Of GARCH Models

There are two types of Volatile models:

1. In the first category of volatile models, conditional variance changes over times as past errors leaving unconditional variance constant. ARCH and GARCH models are the example of this class.

2. The second category of volatile model is not purely the function of observation. These are called latent volatile or stochastic volatile models (Engle and Patton (2001)). These category of models can be used to explain structural breaks over random times and other factors such

as random amplitudes, multiple factors, jumps fat-tailed shocks, fractals and multi-fractals etc. They are also difficult to estimate and forecast.

GARCH

The Auto Regressive Conditional Hetroskedicity (ARCH) model introduced for modelling inflationary uncertainty, but has subsequently found especially wide use in the analysis of financial time series forecasting by Engle (1982). Coulson and Robins (1985) studied volatility of inflation and volatility in stock markets returns, Engle (1982) and Domowitz and Hakkio (1985) suggested that in models of inflation, large and small forecast errors appeared to occur in cluster.

ARCH (n) model is defined as,

$$k_t = \phi_0 + \sum_{i=1}^{n} \phi_i \alpha_{t-i}^2$$

$$k_t = \varphi_0 + (\varphi_1\, G + \varphi_2\, G^2 + \ldots + \varphi_n\, G^n)\ \alpha_t^2$$

$$\text{or} \quad k_t = \varphi_0 + \varphi(G)\, \alpha_t^2 \quad\text{...}\ (1)$$

Where 'n' is the order of the ARCH process, is the innovation process with $E[\alpha_t] = 0$ and autocorrelation $\text{cov}(\alpha_t, \alpha_s) = 0$, $s \neq t$.

Equation '1' is called ARCH model and 'G' denotes the lag operators.

Empirically, ARCH model does not allow more lags in the conditional variance equation and typically imposed positivity constrain. Bollerslev (1986) invented GARCH (Generalized Autoregressive Conditional Heteroskedasticity) model for representing long-memory and malleable lag structure both.

$$k_t^2 = \sum_{i=1}^{n} \varphi_i \alpha_{t-i}^2 + \sum_{j}^{m} \delta_j k_{t-j}^2 \quad\text{..}\ (2)$$

$$k_t^2 = \varphi_0 + \varphi(G)\alpha_t^2 + \delta(G)k_t^2$$

Where

$m \geq 0,\ n > 0,$
$\varphi_0 > 0,\ \varphi_i \geq 0$
$i = 1, \ldots, n$
$\delta_j \geq 0, \quad j = 1, \ldots, m$

Where equation (2) is called GARCH (m,n) process. For *m* = 0 equation (1) reduces to the ARCH (*n*) process.

GARCH–in–Mean model

In finance GARCH-in-mean (GARCH-M) model is improved form of the GARCH model as this model is well suited to account for the risk-return relationship, where the increased returns are expected with increased risk. It is observed that an increase in risk tends to conclude higher expected returns in share prices. To model such phenomenon GARCH-M model was introduced by Engle, Lilien and Robins (1987) and extended by Engle and Patton (2001). In GARCH-M conditional variance, standard deviation or logarithmic variance term is included into the mean equation.

If r_t is daily returns then the mean equation is define as,

$$r_t = \lambda_0 + \theta\left(\sigma_t^2, \sigma_t \text{ or } \log \sigma_t^2\right) + \alpha_t \quad \text{………......……………….…..................................} \quad (3)$$

GARCH–M (m, n) can be defined as,

$$k_t^2 = \varphi_0 + \sum_{i=1}^{n} \varphi_i z_{t-1}^2 + \sum_{j=1}^{m} \delta_j k_{t-1}^2 \quad \text{...........................…….........…………………...…........} \quad (4)$$

Where λ_o and θ are constant. The constant θ is the risk premium parameter and the positive value shows that the return r_t has a positive relation to its own volatility. Equation (3) which is the conditional mean equation of the return shows an increase or decrease in the conditional variance is associated with mean return equation. GARCH–M model characterizes evolution of the mean and variance simultaneously in mean equation.

Integrated GARCH (IGARCH)

GARCH models assume that volatilities depend on past volatilities and also on past innovations. GARCH models are symmetric and have short memory. The Integrated GARCH (IGARCH) model modifies the GARCH model which incorporate an approximate unit root in the variance equation; i.e. $\sum_{i=1}^{n} \varphi_i + \sum_{j=1}^{m} \delta_j = 1$ (see Glosten et al. (1993)).

IGARCH (n, m) models design to modeled persistent changes in variance. Persistency is an important property of the volatile models which investigated how long shocks to conditional variance persist. Thus IGARCH model accounted maximum persistency as compared to GARCH.

Data Analysis And Results

In this study three stock markets daily closing price data are selected among the member of SAARC countries namely; KSE 100 of Pakistan, BSESN of India and CSE of Sri Lanka from Yahoo

finance. We use data from 1st January, 2011 to 30th November, 2016 excluding weekends and then calculate returns of these closing price indices using the logarithmic transformation. The graphs of returns (Figure-1(b), 2(b) &3(b)) of closing indices of all markets show that continuously compound returns moving in both (positive and negative) direction around the mean and close to zero. Larger spike shows the leverage effects which separated very small fluctuation (volatility clustering).

Data from 1st January, 2011 to 23rd November, 2016 used for model building and 24th November, 2016 to 30th November, 2016 sample kept as a holdback period in order to compare out sample good or bad forecasting performance.

Figure1(a) Displays daily share data of BSESN
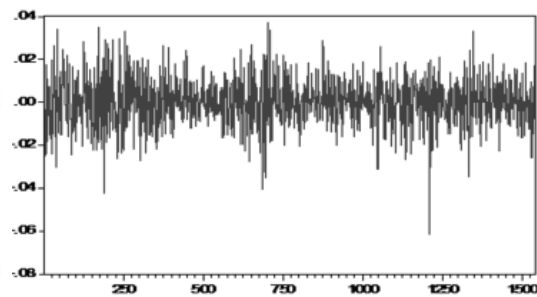
Figure 1 (b) Transformed data of BSESN

Figure 2 (a) Displays daily share data of KSE-100
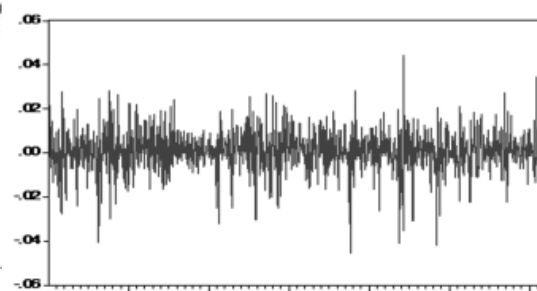
Figure 2 (b) Transformed data of KSE-100
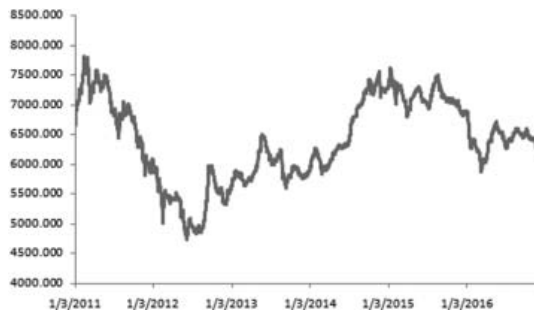
Figure 3 (a) Displays daily share data of CSE   *Figure 3 (b)* Transformed data of CSE
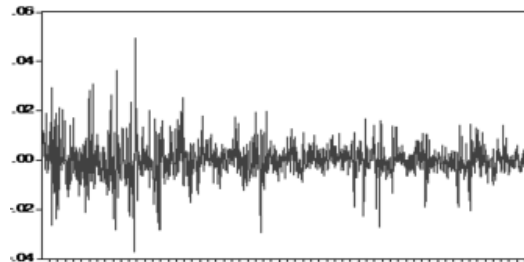
Table 1
Provides general statistics of closing price returns of three stock markets

	BSESN	CSE	KSE-100
Mean	0.000168	-4.19E-05	0.00083
Median	0	0	0.00043
Maximum	0.037035	0.049567	0.044186
Minimum	-0.061197	-0.037227	-0.04558
Std. Dev.	0.010078	0.006818	0.008595
Skewness	-0.144424	0.122244	-0.393025
Kurtosis	4.807363	8.486484	6.270286
Jarque-Bera	215.2372	1937.863	726.8374
Probability	0	0	0

From Table 1, it can be seen that all three returns have positive mean value except CSE. Furthermore, mean return of KSE-100 is greater than BSESN and CSE. KSE-100 and BSESN are negatively skewed while CSE is positively skewed indicating the return distributions are asymmetric. Most importantly, all three markets have fat tail distribution suggesting excess kurtosis but CSE has much fatter tail than other two. Standard deviation is high in Bombay stock but minimum in Colombo stock. While experimenting, the Jarque–Bera test also rejected the null hypothesis of normality assumption.

In this section, we show model building process of GARCH, IGARCH and GARCH-M models. In order to select suitable model we used the Akaike Information Criterion (AIC) and Schwarz Bayesian Information Criterion (SBIC). The parameter estimated for the family of GARCH models

using the maximum likelihood method under the hypothesis that errors are normally distributed. The empirical analysis shows following conclusions.

1. GARCH (1, 1) is found the suitable model in simple GARCH for all the series. From Table 2 sum of the coefficients of lagged squared residuals (ϕ_1) and lagged conditional variance (δ_1) for BSESN (0.98277), KSE-100 (0.86693) and CSE (0.9749) are highly statistically significant at 5% level of significance. Which shows that the conditional variance is highly persistent in all markets. Furthermore, BSESN as compared to other two selected stock markets returns is more persistent. The sum of $\phi_1 + \delta_1 < 1$ also explains that conditional volatilities are mean reverting process.

Table 2
Output of GARCH (1,1) model

Variance Equation			
$k_t^2 \;=\; \phi_0 + \phi_1 \alpha_{t-1}^2 + \delta_1\, k_{t-1}^2$			
ϕ_0	ϕ_1	δ_1	*p-v*
KSE-100	1.09E-05	0.2052	0.6617	0
S.E	(1.51E-06)	(0.222)	(0.0331)	
BSESN	1.69E-06	0.03826	0.94451	0
S.E	(5.93E-07)	(0.0085)	(0.0127)	
CSE	1.37E-06	0.1362	0.8387	0
S.E	(2.36E-07)	(0.01312)	(0.0136)	

Note: p-v indicates p-value and S.E represents standard error

2. In GARCH-M we used conditional standard deviation, variance and log variance in mean equation. Table (3, 4, & 5) represent risk premium θ parameter in mean equations is found statistically insignificant in CSE and BSESN, invalidating the assumption that there is correlation between risk and expected return. However, in KSE-100 θ is found significant at 5% level of significance shows that the return is positively related to its past volatility.

Table 3
Output of GARCH-M (1,1) with conditional standard deviation in mean equation

	Mean equation		Variance Equation			
	$r_t = \lambda_0 + \theta(\sigma_t) + \varepsilon_t$		$k_t^2 = \phi_0 + \phi_1\alpha_{t-1}^2 + \delta_1 k_{t-1}^2$			
	λ_0	θ	φ_0	φ_1	δ_1	*p-v*
KSE-100	-0.000910	0.28526	1.16E-05	0.2110	0.6466	0
	S.E (0.0010) p-v [0.3719]	S.E (0.12992) p-v [0.0281]	S.E (1.62E-06)	S.E (0.0226)	S.E (0.03486)	
BSESN	-0.001478	0.1936	1.88E-06	0.0403	0.94056	0
	S.E (0.1533) p-v [0.3119]	S.E (0.1532) p-v [0.2066]	S.E (6.37E-07)	S.E (0.008972)	S.E (0.01345)	
CSE	2.87E-05	0.024358	1.37E-06	0.1363	0.8387	0
	S.E (0.00045) p-v [0.7759]	S.E (0.0856) p-v [0.9496]	S.E (2.38E-07)	S.E (0.0131)	S.E (0.0136)	

Note: p-v indicates p-value and S.E represents standard error.

Table 4
Output of GARCH-M (1,1) with conditional variance in mean equation

	Mean equation		Variance Equation			
	$r_t = \lambda_0 + \theta(\sigma_t^2) + \varepsilon_t$		$k_t^2 = \phi_0 + \phi_1\alpha_{t-1}^2 + \delta_1 k_{t-1}^2$			
	λ_0	θ	φ_0	φ_1	δ_1	*p-v*
KSE-100	0.000371	14.75496	1.16E-05	0.211	0.6466	0
	S.E (0.000476) p-v [0.4365]	S.E (6.9759) p-v [0.0344]	S.E (1.62E-06)	S.E (0.0222)	S.E (0.0348)	
BSESN	-0.001478	0.1936	1.88E-06	0.040343	0.940567	0
	S.E (0.153292) p-v [0.3119]	S.E (0.1532) p-v [0.2066]	S.E (6.37E-07)	S.E (0.008972)	S.E (0.01345)	
CSE	6.44E-05	2.9401	1.37E-06	0.136255	0.838752	0
	S.E (0.000214) p-v [0.7637]	S.E (5.8032) p-v [0.6124]	S.E (2.38E-07)	S.E (0.0131)	S.E (0.0136)	

Note: p-v indicates p-value and S.E represents standard error.

Table 5

Output of GARCH-M (1, 1) with conditional log variance in mean equation

	Mean Equation		**Variance Equation**			
	$r_t = \lambda_0 + \theta \log(\sigma_t^2) + \varepsilon_t$		$k_t^2 = \phi_0 + \phi_1 \alpha_{t-1}^2 + \delta_1 k_{t-1}^2$			
	λ_0	θ	φ_0	φ_1	δ_1	*p-v*
KSE-100	0.01361	0.00126	1.17E-05	0.211633	0.6439	0
	S.E (0.00539) p-v [0.0116]	S.E (0.0005) p-v [0.0221]	S.E (1.63E-06)	S.E (0.022823)	S.E (0.03511)	
BSESN	0.008944	0.00092	1.87E-06	0.040343	0.940743	0
	S.E (0.007195) p-v [0.2317]	S.E (0.0072) p-v [0.2138]	S.E (6.33E-07)	S.E (0.0089)	S.E (0.0134)	
CSE	0.000546	3.66E-06	1.37E-06	0.1363	0.8387	0
	S.E (0.0028) p-v [0.7637]	S.E (2.38E-07) p-v [0.6124]	S.E (2.37E-07)	S.E (0.013128)	S.E (0.01356)	

Note: p-v indicates p-value and S.E represents standard error. In the IGARCH (1,1) the sum of ϕ_1 and δ_1 are equal to one. The sum of the parameter $\phi_1 + \delta_1$ is one in BSESN- and CSE reveals the more persistent as compared to KSE-100.

Table 6
Output of IGARCH

	Variance Equation		
	$k_t^2 = \phi_1 \alpha_{t-1}^2 + \delta_1 k_{t-1}^2$		
	φ_1	δ_1	*p-v*
KSE-100	0.0530	0.9469	0
	S.E (0.00244)	S.E (0.00244)	
BSESN	0.03222	0.9678	
	S.E (0.003747)	S.E (0.00375)	0
CSE	0.07894	0.9211	
	S.E (0.0038)	S.E (0.0038)	0

Note: p-v indicates p-value and S.E represents standard error.

Table 7 reports the in-sample FMSE of GARCH, IGARCH and GARCH-M models of three stock markets. GARCH- in- mean with conditional variance in mean equation has minimum root mean square error (RMSE) and mean absolute error (MAE). However, in BSESN and CSE have approximately same RMSE and MAE.

Table 7
In-sample forecast RMSE and MAE

	Model	(RMSE)	MAE
KSE-100	GARCH-M-Standard Deviation	215.68	143.748
	GARCH-M-variance	215.291	143.563
	GARCH-M-log variance	215.96	143.86
	IGARCH	215.962	143.756
	GARCH	216.287	144.359
BSESN	GARCH	217.544	159.484
	IGARCH	217.540	159.475
CSE	GARCH	43.131	28.447
	IGARCH	43.11786	28.4003

Table 8
Out-sample forecast of all stock markets

COUNTRY	Model	FRMSE
Karachi Stock Exchange (KSE-100)	GARCH(1,1)	175.4981
	GARCH-M(1,1)- StandardDeviation	164.093
	GARCH-M(1,1)-Variance	165.993
	GARCH-M(1,1)-Log Variance	162.372
	IGARCH(1,1)	169.2279
Bombay Stock Exchange (BSESN)	GARCH (1,1)	246.893
	IGARCH (1,1)	246.893
Colombo Stock Exchange (CSE)	GARCH (1,1)	9.2982
	IGARCH (1,1)	9.2398

From the above table GARCH-M-Log variance for KSE-100 and for CSE IGARCH have minimum FMSE. On the other hand, in BSESN GARCH and IGARCH both have same FMSE.

Conclusion

This study finds stable markets and also compares forecasting performance of daily closing prices indices of three stock markets KSE-100 of Pakistan, (BSESN) of India and Colombo Stock Exchange (CSE) of Sri Lanka using GARCH, GARCH-M and IGARCH models. We built above mentioned symmetric GARCH models for each stock markets by taking different values of parameter ('m' and 'n'), suitable models were selected based on minimum AIC and SBIC criterion. GARCH (1,1), IGARCH(1,1) and GARCH-M (1,1) are suitable models. GARCH-M model was not found suitable for BSESN & CSE as the risk premium parameter of mean equation was found insignificant in all cases. It shows that there is no correlation between risk and return. Therefore, only GARCH and IGARCH model were built to in and out-sample forecasting for CSE and BSESN. The forecasting behaviour was evaluated in both ways in-sample; RMSE and MAE and out-sample; forecast root mean square errors (FRMSE).

The result shows that the BSESN is more persistent market as the sum of the coefficients of and of GARCH (1,1) model is greater than among all and KSE-100 is less persistent than other two. As we know that financial markets are very sensitive as they are affected to rumour, political upheavals, changes in government monetary and fiscal policies etc. Karachi Stock market is largest stock market of Pakistan during the study period due to unstable political situation it was less persistent that may be one of the reason.According to the Table 8, based on Ferecast root mean square error (FRMSE) we conclude that GARCH-M(1,1)-Log Variance for KSE-100, IGARCH(1,1) for CSE and for BSESN GARCH(1,1)/IGARCH(1,1) model is the most appropriate model for modelling the volatility .

Policy implication and Future research

This study is only in the context of selected stock markets of SAARC countries and these results cannot be generalized for all the member countries. Basically, Economic health is associated with stable stock markets. Therefore, good governance, better monetary policy, low unemployment rate and increasing FDI will improve the investment in the Pakistan stock market. Increase investment is associated with stability of stock market. This study is focuses on univarite symmetric volatility models to compare the performance of Srilanka, India, and Pakistan stock markets. In future, asymmetric univarite GARCH models and multivariate frame work approaches may be applied to investigate the leverage effect and co-movements of price change in these markets.

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RESONANT LEADERSHIP AT WORKPLACE: HOW EMOTIONAL INTELLIGENCE IMPACTS EMPLOYEES' ATTITUDES - A CROSS-SECTIONAL STUDY

Masood Hassan[1] and Muhammad Azeem Qureshi[2]

Abstract

Committed and satisfied employees significantly contribute to the success of an organization but how the required level of job satisfaction and organizational commitment can be achieved has been the subject of interest for the research community for decades. Employees' moods and emotion are subject to continuous variation and managing and directing them to organizational success have always been a challenge. Resonant leaders, practicing emotional intelligence, are claimed to deal with this challenge. However, there is a paucity of literature to verify this claim. This research aims to address this issue by investigating how resonant leadership influences employees' attitude at workplace. Drawing on Affective Events Theory and Social Exchange Theory, this research performs CFA to test the proposed research model. Results indicate a good model-fit and support all proposed hypotheses suggesting that resonant leadership increases employees' job satisfaction and organizational commitment while job satisfaction partially mediates between resonant leadership and organizational commitment. Resonant leadership predicts continuance commitment more than any other component of organizational commitment. This finding provides the direction of future research for examining the possible role of the high cost of leaving the organization.

Keywords: Resonant Leadership, Emotional Intelligence, Organizational Commitment, Job Satisfaction.

JEL Classification: Z000,O150,M120

Introduction

        Job satisfaction (JS) and organizational commitment (OC) have been the important topics in business research for over many years (Qureshi & Khan, 2016; Lu, While, & Barriball, 2005; Yahaya & Ebrahim, 2016). Committed and satisfied employees significantly contribute to the success

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of an organization (Shahhosseini, Silong, Ismaill, & Uli, 2012). The success of an organization is very much associated with these factors. If employees are satisfied with their job and committed to the organization, they can result in beneficial consequences for the organization such as increased effectiveness, performance, and productivity, and decreased turnover and absenteeism at both the individual and organizational levels (Fiorita, Bozeman, Young, & Meurs, 2007).

Employees satisfied with their job are committed and perform their job in an effective manner which leads to increased organizational performance as well (Awang, Ahmad, & Zin, 2010). However, employees' commitment and satisfaction are much dependent on the treatment they receive from their superiors. The destiny of an organization is determined through the relationship-quality between the employee and employer (Yin, 2015). Specifically, if leadership is equipped with emotional intelligence (EI), the relationship between a leader and followers can drive an organization to produce much better results (Whereas, Ramos-Villarreal, & Holland, 2011). Organizations can earn a competitive advantage through their committed employees who feel proud to be identified with their organization which is only possible when employees are committed and enjoy what they do at their workplace (Steinhaus & Perry, 1996). On the contrary, uncommitted employees with low job satisfaction are prone to be related to several negative outcomes which cost an organization in terms of absenteeism and reduced productivity (Ismail, 2012).

Resonant leaders, using their EI create an environment that inspires employees' commitment toward the organization (Squires, Tourangeau, Laschinger, & Doran, 2010). Similarly, Wagner, Warren, Cummings, Smith, and Olson (2013) found positive association between resonant leadership and organizational commitment. Furthermore, there are various factors which are related to job, affecting job satisfaction including individual's experience at workplace, interpersonal relations with peers as well as their leaders are some of the factors that determine employees' level of JS (Lu, Barriball, Zhang, & While, 2012). There is a dearth of research addressing resonant leadership in the subcontinent. Most of the research addressing resonant leadership is related to only the nursing profession while these researches have been conducted mostly in the Western context. Therefore, what role resonant leadership plays in increasing employees' OC and JS in the Pakistani context with a diversified sample is yet to be examined. Further, moods and emotions of employees continuously vary and managing them is a challenging task. There is a paucity of literature addressing how resonant leaders manage the moods and emotions of their employees to produce desirable outcomes. This gap is filled by this research.

Literature Review

Leadership, a process whereby a group of individuals is influenced to achieve a common goal (Northouse, 2013), plays an important role in predicting positive outcomes in organizations. EI has been found to be significantly associated with good leadership skills (George, 2000). Specifically, resonant leadership which is rooted in emotional intelligence (EI) can be a better predictor of such

outcomes as resonant leaders demonstrate positive emotions for motivating their followers as well as manage emotions of their own and others around them to bring about very best in every situation (Squires et al., 2010).

Emotional Intelligence (EI) has grasped the attention of both professionals and academicians over the past three decades. The idea of EI was originated by Salovey and Mayer (1990) which was further extended by Goleman (1995). There are five main components of EI namely self-awareness, self-regulation, Motivation, Empathy and Social Skills (Goleman, Boyatzis, & McKee, 2002). Self-awareness refers to the ability to have a deeper understanding of one's own self and using this ability to guide action rather than impulses. Self-regulation refers to controlling and directing emotions which are disruptive, while motivation and empathy refer to drive to achieve and putting yourself in someone's own shoe respectively. Finally, social skills refer to the ability to manage relations and lead to the desired destination (Goleman, 2004). People who are driven by emotional intelligence foster a supportive organizational culture that nurtures job satisfaction among employees (Ali & Hamza, 2018). EI leads to increased organizational commitment, job satisfaction and resulting in employees retention (Brunetto, Teo, Shacklock, & Farr-Wharton, 2012).

According to McKee and Massimilian (2006), resonant leaders are equipped with a high level of emotional intelligence. Resonant leaders bring out the best of their employees when they use their emotional, social, environmental, cultural and financial intelligence (Boyatzis & McKee, 2005). Their relationships with others are strong and based on trust. Knowing the contagious nature of emotions, they manage their emotions to create an environment of hope and optimism around them. They demonstrate empathy when they read people as well as produce results using social and intellectual resources. The results, which exceed their personal advancement and impact the entire organization. Therefore, it can be contended that resonant leaders predict better individual and organizational outcomes.

Job satisfaction is one of the concepts that has widely been the subject of interest for the research community for decades and still attracts their attention (Boamah, Laschinger, Wong, & Clarke, 2018). Job satisfaction is referred to a pleasurable emotional state which an employee attains when he or she finds his job facilitating to achieve value (Schwepker, 2001, p. 41). According to Lok and Crawford (2001), the job satisfaction is the idea which is closest to organizational commitment while leadership role cannot be avoided in predicting job satisfaction (Marques-Quinteiro, Vargas, Eifler, & Curral, 2019). Organizational commitment, on the other hand, has also been acknowledged as an important variable in management literature (Chughtai & Zafar, 2006) and characterized as willingness of employees to contribute to the goals of organization and when employees are sure that they will grow and learn with their current employers, their level of commitment becomes higher (Opkara, 2004). The measure of organizational commitment is an assessment of the congruence between one's own values and beliefs of an individual with the values of the organization (Swailes, 2002). Ayeni and Phopoola (2007) found a strong relationship between organizational commitment

and job satisfaction and suggested JS as the most determining factor that explains how well the organization meets expectations of employees.

Organizational commitment is a broader construct comprising of three sub-constructs namely i) Affective commitment, ii) Normative commitment and iii) Continuance commitment. Affective commitment refers to the desire to be part of an organization because of the emotional attachment of an employee with the organization. The feelings due to which an employee does not want to be disassociated with the organization is referred to normative commitment. While continuance commitment refers to employees' attachment with the organization because the associated cost is high if they leave the organization (Meyer & Allen, 1997).

Theoretical background

How resonant leadership predicts OC and JS is rooted in *Social Exchange Theory* (Blau, 1964) and *Affective Events Theory* (Russell & Marie, 2015) respectively. Social exchange theory postulates that individuals tend to reciprocate how they are given certain treatment in order to maintain social exchange equilibrium. Therefore, it can be contended that when resonant leaders exercise emotional intelligence and treat their employees in accordance with their moods and emotions to get best out of them, employees reciprocate such treatment by showing commitment towards organization.

Affective Events theory proposes that employees' moods and emotions explain their work behavior or in other words, emotional experiences (either positive or negative) at work have significant impact on work behaviors, therefore, it can be contended that resonant leaders can better predict job satisfaction when they provide better emotional experiences to employees when demonstrating emotional intelligence.

Conceptual Framework

Extensive literature review and theoretical background support the development of the following conceptual framework and the statements of hypotheses.
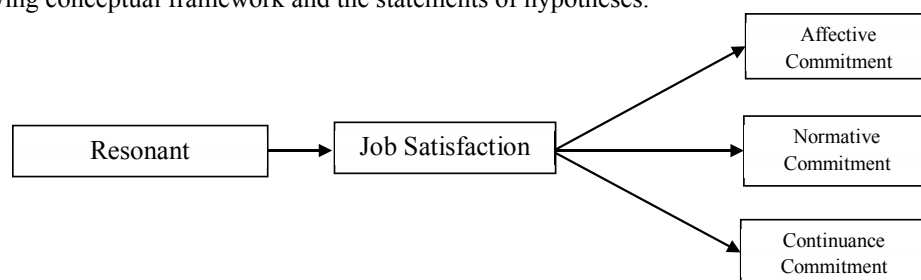
Figure 1: Conceptual Framework

Statements of Hypotheses

H_1: Resonant leadership (RL) positively influences job satisfaction (JS).
H_2: Resonant Leadership (RL) positively influences affective commitment (AC), normative commitment (NC) and continuance commitment (CC).
H_3: Job satisfaction (JS) mediates the influence of resonant leadership (RL) on affective commitment (AC), normative commitment (NC) and continuance commitment (CC).

Research Methodology

Research Paradigm & Research Design

The paradigm this research follows is positivism which bases its foundation on the argument that observation and experimentation are the tools to attain reality (Henn et al., 2009). Further, this study follows the quantitative research design (Creswell, 2013) which is the most appropriate research design to examine the cause-effect relationship. Positivism also argues in support of quantitative method to test the proposed hypotheses.

Population & Sample

The target population for this research is people working in different business sectors in Karachi. The data has been collected from the respondent of Karachi city is considered to be an economic hub and metropolitan city of Pakistan (Qureshi & Lu, 2007) in order to increase the heterogeneity of the population. The sample of 200 respondents which is treated as the minimum appropriate sample for business research (Thompson, 2004) has been drawn from a diverse group of individuals belonging to different business segment in Karachi. The convenient sampling technique has been employed for this research which is a common technique for sampling in academia where research is subject to resource-related constraints (Sekaran, 2000).

Administration of Survey Questionnaire

A survey questionnaire based on 5-point Likert-scale was developed and administered personally to respondents. The scale ranged between *strongly disagree* (1) to *strongly agree* (5). The measurement of resonant leadership was made through the 10-item scale proposed by Cummings et al. (2010). Exemplary item includes *My leader acts on values even if it is at a personal cost*. The 4-item scale of Taylors and Bowers (1972) was used to measure JS. Exemplary item includes *All in all, I am satisfied with my job now*. Finally, all three components of OC have been measured by the scale proposed by Allen and Meyer (1990). Exemplary item includes *I really feel as if this organization's problems are my own*.

Methods of Data Analysis

Initial screening of the data was made through descriptive statistics including Skewness & Kurtosis which assess normality of the data (Hair, 2010). After normality of data is ascertained, construct validity of the data was ascertained through the method recommended by Cline (2010) and Hair Jr. (2008). Further, Confirmatory Factor Analysis (CFA) was conducted (Hair, 2010) in addition to using SPSS AMOS 23 for the fitness of the model and to test the proposed relationship among variables (hypotheses). The criteria for Fit indices used include χ^2 (non-significant), $\chi^2/d.f. \leq$ 3, SRMR < 0.05 RMSEA <0.05 for absolute fit indices. For incremental fit indices, CFI > 0.95 and TFI > 0.95 were used while NNFI > 0.50 and PCFI >0.50 were used for parsimony fit indices.

Results

Respondents' Profile

The profile of respondents of this study is given below which highlights the demographical statisitcs of the respondents.

Table 1
Respondents'.Profile

Variable		Number	Percentage (%)
Gender	Male	125	62.5
	Female	75	37.5
Age	Less than 21	23	11.5
	21 to 30 Years	25	12.5
	31 to 40 Years	38	19
	41 to 51 Years	64	32
	51 and above	50	25
Income	Up to 20,000	42	21
	21,000 to 30,000	48	24
	31,000 to 40,000	45	22.5
	41,000 to 50,000	65	32.5
	51,000 and above	0	0
Marital Status	Single	138	69
	Married	62	31
Education	Up to Intermediate	75	37.5
	Graduation	75	37.5
	Masters	50	25
	M.S/M/.Phil	0	0
	Doctoral	0	0
	Total	200	100

There are 125 62.5%) male and 75 (37.5%) female respondent whose age ranges from 21 years to 51. 138 (69%) of the respondets were unmarried and 62 (31%) were married. The income of 65 (32.5%) respodents was in between Rs.41K to Rs.50K followed by 48 (24%) between 21K to 30K, 42 (21%) upto Rs.20, 000 and 45 (22.5%) between Rs.31K to Rs.40K. 75 (37.5%) of the repondent were Intermediate, 75 (37.5%) up to Graduation and 50 (25%) had master's degree.

Descriptive Statistics

Descriptive statistics are presented to assess if data is normally distributed and that there is no significant standard deviation. Table 1 shows results of descriptive statistics below.

Table 2
Descriptive Analysis

	Mean	**SD**	**Skewness**	**Kurtosis**
Resonant Leadership	3.93	0.56	0.17	-0.49
Job Satisfaction	3.85	0.89	-0.51	-0.96
Affective Commitment	3.38	0.80	-0.40	-0.59
Continuance Commitment	3.27	0.62	0.10	-0.76
Normative Commitment	3.59	0.79	-0.19	-0.81

In the above Table 1, resonant leadership is there with the highest Skewness (M=3.93, SD=.56) with the value of .17 while its Kurtosis is -.49. This is followed by continuance commitment (M=3.27, SD=.62) with the value of .10 while its Kurtosis is -.76. The lowest among all is job satisfaction (M=3.85, SD=.89) with the value of -.51 while its Kurtosis value is -.96. The values of all the other constructs a lie in between these extremes which fall within the acceptable range (Hair Jr. et al., 2010).

Reliability Analysis

Reliability is the index of consistency of data and provides surety that the data collected has coherence. The instruments used in the study have been widely used by researchers in different settings with acceptable Cronbach's Alpha. Details of reliability of the scales for this study are shown. in Table.3 below.

Table 3
Reliability Analysis

	Mean	**Std. Deviation**	**Cronbach's Alpha**
Resonant Leadership	3.93	0.56	.85
Job Satisfaction	3.85	0.89	.77
Affective Commitment	3.38	0.80	.82
Continuance Commitment	3.27	0.62	.79
Normative Commitment	3.59	0.79	.83

The alpha value of resonant leadership is the hightse (M=3.93, SD=.56) with the value .85, followed by normative commitment (M=3.59, SD=.79) with alpha=.83. The lowest value for Cronbach alpha is .77 for job satisfaction (M=3.85, SD=.89). The extreme highest and the lowest values of reliability fall within acceptable range.

Correlation Analysis

The constructs' uniqueness and its distinctiveness has been assessed through correlation. Additionally, this analysis also addresses the multicollinearity issue (Bryman & Bell, 2015). Checking correlation is the requirement for regression analysis. The value of the correlation should be between 0.20-0.90. The item with < 0.20 or >0.90 is to be dropped or merged (Bryman & Bell, 2015). Table 3 shows summarized results of correlation.

Table 4
Summarized Correlation Results

	RL	**JS**	**AC**	**CC**	**NC**
Resonant Leadership	1				
Job Satisfaction	.78	1			
Affective Commitment	.76	.82	1		
Continuance Commitment	.71	.75	.78	1	
Normative Commitment	.73	.75	.77	.85	1

Construct Validity

Instruments with different cultural orginin is validated through construct validity. Discriminant validity acompained with convergent validity is used to assess construct validity (Read,2013).

Convergent Validity

If variance extracted > .40 and α >.70, it confirms convergent validity (Hair, 2010). Table 4 shows the results of convergent validity confirming the above-mentioned criteria.

Table 5
Convergent Validity

Construct	Mean	SD	Cronbach's Alpha	Variance Explained
Resonant Leadership	3.93	0.56	.85	72.30%
Job Satisfaction	3.85	0.89	.77	73.66%
Affective Commitment	3.38	0.80	.82	77.63%
Continuance Commitment	3.27	0.62	.79	78.26%
Normative Commitment	3.59	0.79	.83	85.26%

Discriminant Validity

Fornell and Larcker (1981) recommended that squarre root of VE should be > square of r (correlation) to confirm discriminant validity. Table 5 below confirms that the data acquired for this study fulfills discriminant validity requirements.

Table 6
Discriminant Validity

Construct	RL	JS	AC	CC	NC
Resonant Leadership	8.50				
Job Satisfaction	0.6084	8.58			
Affective Commitment	0.5776	0.6724	8.81		
Continuance Commitment	0.5041	0.5625	0.6084	8.85	
Normative Commitment	0.5329	0.5625	0.5929	0.7225	9.23

Confirmatory Factor Analysis

CFA was performed in order to assess the fitness of good model-fit for structural model which is represented through Figure 2 below.
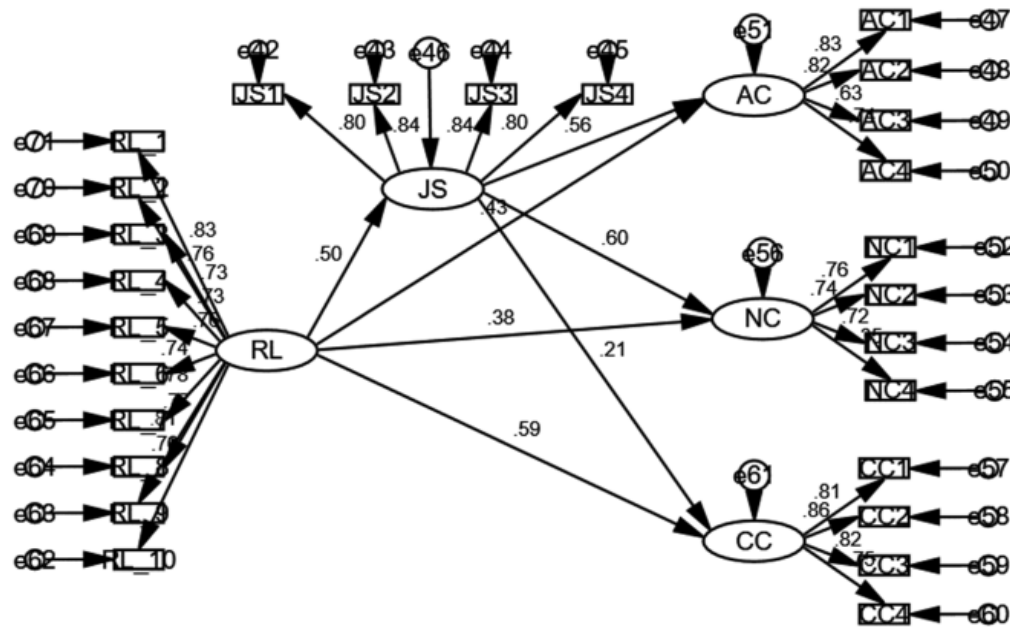
Figure 2: CFA-Structural Model

The $\chi2\,(292)=758.26, p<.05$ while the value of $\chi2/d=2.59$ which is used to avoid the sensitivity of the Chi Square statics to the sample size (Iacobucci, 2010)2010; Schermelleh-Engel, Moosbrugger, & M\\uc0\\u252{}ller, 2003. Since the value of less than 3.0 is acceptable for $\chi2/df$, therefore that value 2.59 indicates a good fit (Kline, 2015)"publisher":"Guilford publications","source":"Google Scholar","author":[{"family":"Kline","given":"Rex"}],"issued":{"date-parts":[["2015"]]}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"} . Absolute fit index category shows the value of SRMR = 0.05, while the *RMSEA* value is .05 which indicates an acceptable fit (Hoyle, 2012; Weston, & Gore, 2006). The incremental fit indices show values of TLI and CFI 0.93 and 0.94 respectively. The values for these fit indices > 0.90 indicate reasonable fit (Hooper, Coughlan, & Mullen, 2008). The PCFI and PNFI values are 0.85 and 0.82 respectively, demonstrating a good fit. The values close to 1 are considered a good fit for PNFI and PCFI (Lomax & Schumacker, 2012)2012. Overall, the proposed model indicates a good fit for the sample data.

Results of Hypotheses Testing

The theoretical framework proposed in the previous chapter helped to hypothesize that the RL has a positive influence on JS (H_1). Further, it was hypothesized that RL has a positive influence

on AC (H_{2a}), NC (H_{2b}) and CC (H_{2c}). Finally, it was also hypothesized that JS mediates the influence of RL on AC (H_{3a}), NC (H_{3b}) and CC (H_{3c}). Table 6 shows the summary of results.

Table 7
Summarized Results of Mediation Analysis

Effect	Effect Size	S.E.	t	p	LLCI	ULCI
RL on JS (H1)	.55	.05	11.15	.00	-	-
	R2 = .29, F (1) = 124.47, p < .05					
Total Effect of RL on AC	.65	.04	15.66	.00	.57	.73
Direct Effect of RL on AC (H2a)	.41	.04	10.27	.00	.33	.49
Indirect Effect of RL on AC (H3a)	.24	.03			.18	.31
	R2 = .52, F (2) = 252.91, p < .05					
Total Effect of RL on NC	.56	.04	14.52	.00	.48	.64
Direct Effect of RL on NC (H2b)	.31	.04	8.97	.00	.24	.38
Indirect Effect of RL on NC (H3b)	.25	.03			.19	.32
	R2 = .54, F (2) = 276.09, p < .05					
Total Effect of RL on CC	.72	.04	16.97	.00	.64	.80
Direct Effect of RL on CC (H2c)	.61	.05	13.18	.00	.52	.71
Indirect Effect of RL on CC (H3c)	.11	.03			.06	.17

The results presented in Table 6 show support.for the.proposed hypotheses. RL significantly predicts JS (b = .55, p < .05) which satisfies the first assumption of mediation and supports H_1. RL significantly predicts AC directly (b =041, p < 0.05) and through the mediation of JS (b = .24, p < .05) which indicates partial mediation as the beta coefficient of RL remained significant in the presence of mediator (JS) and thus support H_{2a} and H_{3a}. Similarly, RL significantly predicts NC directly (b =.31, p < 0.05) and through the mediation of JS (b = .25, p < .05) which indicates again partial mediation and thus support H_{2b} and H_{3b}. Finally, RL significantly predicts CC directly (b =.61, p < 0.05) and through the mediation of JS (b = .11, p < .05) which is the highest effect among all other dimensions of organizational commitment. These results indicate partial mediation and thus support H_{2c} and H_{3c}.

Discussion and Conclusion

The results of this research validate the role of Affective Events Theory and Social Exchange Theory in explaining how resonant leaders increase job satisfaction of their employees which leads them to have higher and stronger organizational commitment. Resonant leaders' positive influence on employees' moods and emotions is translated into their work domain which results in increased job satisfaction. Further, as outlined by social exchange theory, employees tend to maintain

the equilibrium of social exchange in response to positive emotional treatment from their leaders. Since employees are in the subordination of their leaders, it is not possible for employees to provide their leaders with the same emotional experience as they receive from them. Therefore, employees tend to reciprocate the positive behavior of their leadership by demonstrating commitment to the organization. These findings are consistent with Awang, Ahmad and Zin (2010) which suggested that job satisfaction increases employees' commitment with their organization. These findings are also in compliance with the findings of Wagner, Warren, Cummings, Smith, and Olson (2013) and Ayeni and Phopoola (2007) which found a strong association between job satisfaction and organizational commitment as well as the role of leadership in predicting these outcomes. In summary, resonant leaders' practice of emotional intelligence supports managing the moods and emotions of their own and their employees which creates a positive impact on employees attitudes at workplace.

Future Recommendations

Findings of this study indicate that continuance commitment is more explained by resonant leadership than the other two components. The idea of continuance commitment is concerned with the cost associated with leaving the organization. Furthermore, this is the potential sign of lack of opportunities in the job market. Therefore, future research endeavors in this respect can more clarify this phenomenon. Future research can clarify whether or not job opportunities in market overshadow the role of leadership in increasing employees attachment with the organization. It can also explain if leaders truly resonate through their EI to produce a positive impact on employees' lives without anyother influence.

Limitations

Some limitations, as associated with other researches, are the part of this research. First, this is a research based on cross-sectional data which limits the researcher to make a strong claim. Second, the sampling technique (convenient sampling) employed is considered as the weakest among all. The issue of generalizability is associated with non-probability sampling so with this research as well. Future research with probability-based sampling, specifically, a longitudinal study can provide strength to the findings of this research.

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PROPOSING AN ORGANIZATIONAL DIAGNOSTIC MODEL BASED ON FINANCIAL CUM PRODUCTIVITY HORIZONTAL ANALYSIS

Waqar Haider Hashmi[1] and Qaiser Ali Malik[2]

Abstract

The aims of this study are to demonstrate and test a growth-based organizational diagnostic model, which is easy to understand and implement. In order to do so, first a conceptual framework of the model is built while establishing rationale of different components of the model, and finally the application of the model on 51 sampled KSE-100 companies, from 18 different broadly categorized industrial sectors selected on the basis of purposive sampling, is demonstrated on case to case basis. In order to check if the data fits the model, Structural Equation Modeling (SEM) is used. The result shows a perfect data to model fit and usefulness of the model to carry-out instant organizational diagnosis.

Keywords: Organizational Diagnosis, Conceptual Framework, Productivity Analysis, Stake Holder.

JEL Classification: G200

Introduction

Background of the Study

The aims of this study, as envisaged by earlier practitioners[1] of the proposed model (Tsuchiya, 1997), are first to demonstrate a simple to implement organizational diagnostic model based on financial cum productivity analysis, which can be used to diagnose a business concern instantly at any point in time in order to identify opportunities for incremental or overall organizational improvement and secondly to test the fitness of the model on real time data. Notable management experts (Fukuda & Sase, 1994; Shimizu, Wainai & Nagai, 1992) have recommended that a hybrid of financial and productivity analysis can either be used as a standalone tool or can be synched, as a permanent feature, with an integrated management system designed for bringing continuous ongoing improvement in the

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organization. The proposed model uses a combination of similar financial and productivity related horizontal analysis for developing critical insights into an organization's performance. The model is used by management consultants in the Far East but it has yet to be presented and discussed in academic circles.

Before demonstrating the model, it is imperative to discuss one by one different components of the model and their relationship with each other. It is also necessary to establish the rationale of the model so that adopters develop a clear understanding of the conceptual frameworks and underlying principles. Discussion on each important aspect is given below in an orderly manner.

The company's top-line i.e., sales or revenue, figure is the single most important indicator of business performance (Weinzimmer, Nystrom, & Freeman, 1998). Sales figure is clearly the tipping point for review. Equally important is the company's bottom-line i.e., net profit, as it is derived from the top-line. It is a matter of concern if the growth in top-line could not be translated into desirable growth in the bottom-line over a specified period. A continuous growth in sales, successfully realized into streams of net profits, is the most desirable state for any business concern (Tsuchiya, 1997). After making sure the desired results are achieved, it becomes important to gauge if the organizational resources committed for realization of the desired results were optimally utilized or not. Under-utilization of resources is also a matter of concern. In this regard, revenue or net profit per employee becomes another important measure. Though they are the most significant, employees are only a single type of the different resources employed to achieve top-line or bottom-line targets. It becomes imperative, therefore, to measure the return on a unit of overall capital employed i.e., all things in monetary terms, the language the management understand (Shimizu, Wainai, & Nagai, 1992).

While sales and net profits are general indicators of the wealth of the organization accumulated over a period of time, the stakeholders are more concerned about their share in the business gains. For instance, the investors are interested in the dividends and stock price appreciation, the creditors in recovery of the principal and on top of that accumulation of profits to support payment of interest, the Government in taxes and the employees in bonuses etc. Therefore, measurement of wealth for gains-sharing becomes necessary (Tsuchiya, 1997). Calculation of the wealth i.e., value added or wealth created and distributed among the stakeholders is therefore very essential (Fukuda & Sase, 1994).

Growth as a measure is a relative phenomenon as the size of the organization matters. For a large organization, little growth might be significant whereas for small organizations big growth might not be significant. It is therefore important to incorporate the size of the organization in to the equation in order to use the growth model otherwise the results would be misleading. There are different approaches used all over the world to measure the size of the organization. Broadly the organizations are categorized as small, medium and large. The size of the organization can be measured based on different factors such as the number of employees, capital employed and the magnitude of revenues (Weinzimmer, 2000).

A business concern can grow in terms of number of employees; salaries (payroll) and capital. However, the percentage of growth in the number of employees, payroll and capital individually should be less than the revenue the business enterprise earns over a specified period of time otherwise the growth is not sustainable. Percentage growth in corporate revenues should be less than the percentage growth in terms of profit and value-added. If this relationship does not exist there seems to be something wrong with the growth pattern. To be specified, if the following relationship does not exit then there is or are problems in the organizational growth potential (Tsuchiya, 1997).

Table 1

% Increase in:		% Increase in:		% Increase in:
(1) Employee	<		<	(5) Profit
(2) Payroll	<	(4) Sale		
(3) Capital	<		<	(6) Value-added

Here 'Employee' means total number of employees or the strength of the organization, 'Payroll' refers to the remuneration paid to the employees, 'Capital' means total assets, 'Sales' means revenues i.e., the top-line, 'Profit' means net profit and value-added refers to sales less cost of services / goods purchased from outside i.e., revenue less value created by other players in the value chain (Tsuchiya, 1997).

Significance of the Study

As evident from the literature review, apart from DuPont; Integrated Productivity Improvement; and Value-added Productivity Measurement analyses there has been marginal progress made in the field of organizational diagnostics using hybrid mechanism based on financial and productivity analysis. Although, the proposed model is used by many practitioners effectively, the question is why it has not been publicized so that a wider range of people can benefit from its use. This shows a gap between practice and academia. It is therefore, important to establish the efficacy of the model, from academic point of view, in pinpointing organizational problem areas in order to address them. Therefore, the key question to be addressed in this study is, can the proposed model be used successfully to identify the true state of financial situation of the organization? This needs to be substantiated on real time data. This study focuses to accomplish this end on the basis of analysis on real-time data from Pakistani market. An investor needs to ascertain if it is viable to invest in the stocks of the company, a creditor needs to make sure the lent funds could be successfully recovered, a consultant wants to identify the problem areas in the organization and an analyst wants to diagnose the organization to facilitate decisions. This model provides for a mechanism to carry out diagnosis of the firm in a structured and meaningful manner, instantly, to make informed decisions.

Study Objectives

The objective of the study is to demonstrate and test an organizational diagnostic model based on financial cum productivity horizontal analysis that can be used to assess the health of the organization and to initiate the academic discourse on the subject theme. The study would also present an overview of the widely regarded organizational diagnostic models introduced in the past.

Hypothesis

H_1: The model is useful for carrying diagnosis of the organization.
H_o: The model is not useful for carrying diagnosis of the organization.

Literature Review

General

Organizations are living organisms, as they consist of people, and therefore organizations have to continuously look for new ways to cope with the changing environmental settings. One of the strategies to adopt change is organizational diagnosis to assess the state of the organization in order to bridge the gaps through interventions for future development (Kume & Leskaj, 2015).

Like a patient, organizational diagnosis involves finding symptoms detrimental to organizational health in order to incorporate improvements in a systematic manner (Saeed & Wang, 2013). Although different methods for organizational diagnosis have been developed and proposed over the recent few years, only the test of time would prove their worth and efficacy (Zarei, Chaghousee, & Ghapanchi, 2014).

As highlighted by Porras and Robertson (1986), and as per our review of relevant literature, it is evident that the earlier models focus on the following broad dimensions:

1. Inputs: Man (Motivation, Leadership), Methods (Tasks), Materials & Machines.

2. Processes: Process Management, Policies & Procedures etc.

3. Outputs: Financial & Productivity indicators.

4. Internal Environment: Systems & Structures.

5. External Environment: Market, Political & Technological aspects.

6. Purpose: Raison De'tre, Strategy, Objectives, Mission & Vision.

The Following conceptual framework can be used to summarize the focal areas of earlier models which seems pretty logical from the standpoint of overview:
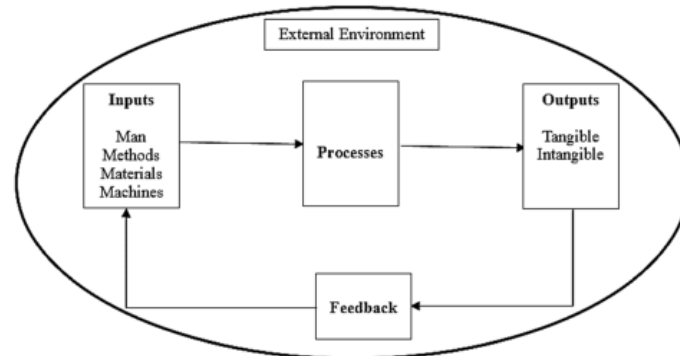
Figure 1: Components Focused in Diagnostic Models & Systems Framework

Areas for organizational interventions in the earlier models as also summarized by Saeed and Wang (2013), and as per our literature review, are:

1. Capacity building.
2. Behavior.
3. Processes.
4. Structures.
5. Technologies.
6. Goals.
7. Allocation of Resources.
8. Cultures.

As noted by Hayes (2007), and in line with our study, the process for carrying-out organizational diagnosis in the context of organizational change involves the following steps:

1. Developing a framework and mechanism for diagnosis.
2. Planning a fact finding or data collection methodology.
3. Carrying analysis of facts and figures.
4. Deriving conclusions.
5. Identifying desired interventions.

Only the organizational diagnostic models which are widely used have been discussed in this study. These widely used organizational diagnostic models have been discussed in literature in detail (Saeed & Wang, 2013; Gavrea, 2010; Falletta, 2005). However, it is interesting to note that there is no consensus over which model to include or exclude from the study among the researchers.

Among the earlier diagnostic methods is the DuPont Analysis which is useful for planning and control. DuPont analysis is a widely applied management accounting quantitative analysis (DuPont Corporation, 1920s). The significant feature of DuPont Analysis is the combination of profitability and productivity ratio analysis.

While DuPont analysis was used to identify areas for improvement, the analysis itself does not suggest any remedial measure leaving to the discretion of the management to opt for an appropriate intervention strategy. DuPont model has similarities with the proposed organizational diagnostic model as it employs both profitability and productivity measurement indicators, however, the difference is that DuPont model is not a growth-centered model; rather it employs ratio analysis between inputs and outputs with creative placement of outputs in numerator while adhering to mathematical principles.

Force Field Analysis introduced by Lewin (1951) provides for a mechanism for organizational transition from an undesirable state to a desirable state. A framework for organizational change was derived from the Force Field Analysis approach. Based on four factors i.e., people, tasks, structure, and technology, the Diamond Model was developed by Leavitt (1965) for measuring organizational effectiveness and bringing improvements accordingly.

At the same time, the Open Systems Theory emerged which focuses on organization's interaction with and dependence on the organization's external environment (Emery & Trist, 1965). Open Systems Theory provided a mechanism for assessing organizational interaction with the external environment.

System Analysis based on four management styles i.e., participative, consultative, benevolent-authoritative and exploitative-authoritative was developed by Likert (1967) which provides a framework for assessing management styles.

For assessing the functioning of the organization, Six-box Model based on six factors i.e., purpose, structure, relationships, rewards, leadership and helpful mechanisms was introduced by Weisbord (1976). The Six-box Model provides for a method to assess the nature of organizational interaction with the environment. Weisbord's model is considered to be widely used model due to its lucidity (Jones & Brazzel, 2012). Congruence Model for Organization Analysis, consistent with the Open Systems Theory and based on analysis of organizational behavior at individual, group and systems levels was introduced by Nadler and Tushman (1977).

Value-based 7S management framework was developed by Waterman and Peters (1981). The 7S refer to the seven key dimensions in the context of organizational framework i.e. style, staff, systems, strategy, structure, skills and shared values which are focused to assess organizations.

TPC Framework, consistent with Open Systems Theory, was introduced by Tichy (1983) TPC stands for Technical, Political & Cultural aspects of the organization. TPC Framework provides for an approach to organizational strategic management based on the change levers namely mission strategy, tasks, prescribed networks, people, organizational processes, and emergent networks.

High Performance Programming was developed by Nelson and Burns (1984). High Performance Programming is used to categorize organizations as reactive (level-1), responsive (level-2), proactive (level-3) and performing (level-4). Desired interventions are incorporated after getting feedback through a survey-questionnaire under the High Performance Programming approach. High Performance Programming provides a framework for assessing the nature of the organization.

Organizational model to diagnose behavior at individual and group levels was introduced by Harrison (1987). The model focuses on outputs i.e., performance and Quality of Work Life.Another significant development took place with the introduction of Value-added Productivity Measurement approach introduced by Shimizu, Wainai and Nagai (1991). The framework advocates the use of integrated management systems for quantitative value-added productivity measurement and analysis for organizational incremental improvement based on popular Japanese management systems including Kaizen and Total Quality Management.

Model of Organizational Performance and Change was developed by Burke and Litwin (1992). The Model of Organizational Performance and Change is based on different organizational factors. The striking feature of the Model is that it derives a great deal from previous organizational development models that are considered as precursors for organizational change.

While providing guidelines to productivity facilitators, Fukuda and Sase (1994) introduced Integrated Productivity and Quality Improvement framework with a strategic organizational focus applying top-down and bottom-up approaches based on qualitative analysis supported with quantitative analysis. There is a need to apply a hybrid of qualitative and quantitative analysis to diagnose organizations in the 21st century (Vitale, Armenakis, & Field, 2008). It is interesting to note that Baba (1996) and Imai (1997) highlighted an approach through which the model for rational decision making proposed by Simon (1955) was merged in order to solve problems and implement improvements. The impact on organization envisaged was incremental but it can be dramatic depending on the maturity of the organization and level at which intervention is made. Here is the extracted hybrid conceptual mechanism in crux:
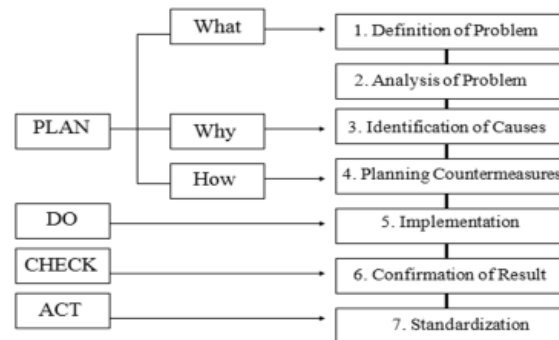
Figure 2: PDCA & Problem-Solving Cycles

Action Learning for Organization Development and Change approach based on Action Learning Theory as the name suggests was introduced by Freedman (2000). The Action Learning for Organization Development and Change methodology is used by the problem-solving teams while identifying and solving problems.

A summary of all organizational diagnostic models can be presented in the following manner:

Model	Quantitative Analysis	Qualitative Analysis	Incremental Change	Drastic Change	Set Focus Areas
DuPont Analysis	X		X		X
Force Field Analysis		X		X	
Open Systems		X		X	X
Likert's Systems Analysis		X		X	X
Six-box		X		X	X
Congruence		X		X	X
7-S		X		X	X
Tichy's TPC		X		X	X
High Performance Programming		X		X	X
Harrison's Output-based		X		X	X
Value-added Productivity Measurement	X		X		
Organizational Performance & Change		X		X	X
Integrated Productivity & Quality Improvement	X		X		
Action Learning		X	X		
PDCA Cycle		X	X		

Figure 3: Summarized Diagnostic Model Dimensions & Characteristics

Research Methodology

Sampling Method

Secondary data presented in the annual published reports of KSE-100 companies was required to be gathered to demonstrate the model. Since the published data is audited by reputable firms, it is considered reliable. There are 51 KSE-100 companies that disclose the data in their annual audited financial reports required for analysis based on the proposed model.

Sampling Technique

Judgmental or purposive sampling technique is used i.e., financial data disclosed by top KSE-100 listed companies from major sectors of the economy is used, as it is a cross-sectional study.

Data Analysis Techniques

LISREL Version 9.2 (Student Edition) was used for Structural Equation Modeling in order to test the entire model in one go.No other econometric technique provides a way to test the entire model.

Results and Discussion

Tested Hypothesis

The usefulness of the proposed organizational diagnostic model can best be substantiated with the fact that out of the 51 sampled KSE-100 companies, only 02 companies have been found to be complying completely with the desired requirements of the model i.e., growth in number of employees, payroll and capital is less than growth in sales and the growth in profit and value-added is greater than growth in sales. Out of 51 cases, there are 23 instances where growth in profit and value added is greater than growth in sales. On the other hand, there are only 6 instances where growth in number of employees, payroll and capital is less than the growth in sales. There have been 28, 35, 40, 19 and 13 instances where the results are in compliance with ideal situations assumed in the model in terms of profit, value-added, number of employees, payroll and capital respectively.

While looking at the case by case diagnosis of the 51 sampled KSE-100 companies from different industrial sectors of the economy of Pakistan, we see that the model gives valuable insights on the areas of key concern, apart from the two companies i.e., Engro Fertilizer and Orix Leasing that have shown satisfactory results, problem areas in the rest of the companies have been clearly identified.

SEM Test Results

The chi-square statistic is insignificant, indicating an adequate model fit to the sample correlation matrix (Minimum Fit Function Chi-Square = 0.08, df = 1, p = 0.77551). Several of the other model-fit indices for the theoretical model indicate an almost perfect data to model fit, for example, GFI = .999 (ideally >= 90), RMSEA = 0.000, and NFI = 0.999(ideally >= 90). The path diagram is as under:

Chi-square = 0.08 df = 1 p-value = 0.77551 RMSEA = 0.000
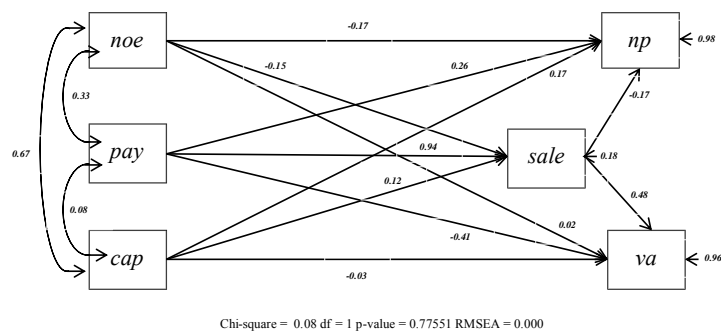
Figure 4: The Path Diagram

Modification indices in the computer output, however, offer suggestions on how to further improve the model to data-fit. Complete indices are given below:

Table 2
Modification indices

Model Fit Criterion	Calculation	Accepted Value	Adequacy
Maximum Likelihood Ratio Chi-Square (C1)	0.0813 (P = 0.7755)		
Browne's (1984) ADF Chi-Square (C2_NT)	0.0813 (P = 0.7756)		
Root Mean Square Error of Approximation (RMSEA)	0.000	< 0.08	Good
Normed Fit Index (NFI)	0.999	>=0.90	Good
Non-Normed Fit Index (NNFI)	1.12	>=0.90	Good
Parsimony Normed Fit Index (PNFI)	0.0666	>=0.90	Very Low
Comparative Fit Index (CFI)	1.000	>=0.90	Good
Incremental Fit Index (IFI)	1.007	>=0.90	Good
Relative Fit Index (RFI)	0.991	>=0.90	Good
Goodness of Fit Index (GFI)	0.999	>=0.90	Good
Adjusted Goodness of Fit Index (AGFI)	0.989	>=0.90	Good

Even though the above goodness of fit indices shows a near perfect data to model fit, but the path diagram depicts certain undesirable outcomes. For instance, the real time data negates the notion that increases in sales and profitability depend on increase in number of employees. Similar is the case for net profit and value-added with pay and capital. This exposes Pakistani organizations for their lack of strategic thinking and rationality. Apart from this, one possibility is that it would take a year or two to have the effect of growth in inputs i.e., number of employees, pay and capital to become visible in growth figures pertaining to sales, net profit, and value-added or vice versa in the reverse cycles as increase in inputs i.e., number of employees, pay &capital should augment outputs i.e., sales, net profit & value-added and in turn the outputs shall result in enhancing the inputs. This process should ideally go on. If it is not so then there is definitely something wrong in the growth potential of the organization, a premise on which the proposed model is based upon.

Another anomaly highlighted in the path diagram is that growth in sales does not translate into growth in profitability or in other words growth in net profit should ideally stem from growth in sales but the path diagram defies this ideal notion in the case of sampled KSE-100 companies. This is possible due to an unfavorable regulatory regime or inability of the firms to leverage their profitability in the desired manner. Again, the results expose Pakistani top companies to be missing the right type of interventions on fundamental aspects.

Conclusion

The aims of this study were to demonstrate and test the proposed organizational diagnostic model based on financial cum productivity analysis, which is useful to carry-out instant organizational diagnosis. Based on the case studies of the 51 sampled KSE-100 companies and the results of the structural equation modeling technique, it can be concluded with a degree of confidence that the proposed model can be used to diagnose business organizations of all types and sizes. The model can be used to get the desired insights into organizations for making required interventions. The ease of the use of the model has been amply demonstrated. The study also revealed areas where the actual data does not make sense. These are valuable insights for industry and academia to bring the much needed reforms.

Recommendations

It is imperative to have critical reviews of the model from practitioners and academicians to add to the body of knowledge. There are different areas in which further research can be carried out. For instance, the value-added mix or ratio-components can be studied to analyze how organizations leverage their profitability, how much of the total wealth is shared with the employees or for that matter how much the government takes away in the form of taxes. As highlighted by Hashmi and Shakir (2014) in DAWN which is a leading daily newspaper of Pakistan, more than 55% of the wealth created by the giant Fauji Fertilizer Company, a market leader in fertilizer sector, in 2012 was

appropriated to the national exchequer. While 25% of the wealth was distributed to the providers of the capital, only around 7% was the share in gains for the employees. The key point is that there are yardsticks to ascertain the share of employees, creditors, and investors etc., there is no yardstick to fix the share of government in corporate wealth.

In the light of this study the following policy interventions may be made by the Securities & Exchange Commission of Pakistan:

1. Inclusion of value-added or wealth statement in annual audited accounts may be made mandatory for all listed companies; and

2. A uniform or standardized format for presentation of value-added or wealth statement may be devised.

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IMPACT OF MACROECONOMIC VARIABLES AND TERRORISM ON STOCK PRICES IN PAKISTAN

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Abstract

The objective of this study is to investigate the impact of macroeconomic variables (interest rate, the exchange rate, consumer prices, oil prices, gold prices, market size, trade openness) and terrorism on stock prices of Pakistan, by employing Additive Outlier unit root (cointegration, and error correction model with a known Structural break. Time series quarterly data for the period January 2000- December 2016, consisting 68 observations of each variable, was used in this study. The cointegration reveals that there is a significant long-run relationship among the variables. The results found through an error correction model that the long-run bi-directional causality exist between stock prices, exchange rate, industrial production index, and openness. However, the results do not provide evidence of any significant short-run causality between most of the variables.

Keywords*:* Stock Prices, Cointegration with Structural Break, Terrorism, Macroeconomic Variables, Additive Outlier Unit Root.

JEL Classification: G310

Introduction

The understanding of the impact of stock market on the economy of any country is important as it provides the opportunity for various companies to raise their funds, enabling them to extend their business activities. It also stimulates the idle funds of the people to put in productive purpose which will lead to higher productivity and economic growth of the economy. Therefore, it is also called the barometer of the economy. The process of opening up the stock market for foreign investor in Pakistan was due to the financial reforms which were begun since the eighties and which in turn increase the portfolio investment in Pakistan, (Fazal & Qayyum, 2007). There are many market forces which cause to increase or decrease the share prices like depreciation in the exchange rate leads to fall in stock market return (Adjasi & Biekpe, 2005).

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The terrorist attack and political instability may also have an impact on stock returns. Further, the stock market will be crashed due to disturbance in the trade cycle (recession or depression) or crisis. The investors always keep in mind the political and law and order situation of the country before investing because these may have an adverse effect on the stock exchange performance.

KSE-100 index consists of 100 companies from different sectors having the highest market capitalization (90 % of total market capitalization). This index was established with a base value of 1000 points in 1991 and it reached to 18636.03 in April 5, 2013. According to the State Bank of Pakistan, KSE-100 price index increased from 1572 to 2331 points in 1990-91 to 1993-94. However, it fell to 880 points in 1997-98 as compared to 2331 points in 1993-94 due to various internal and external factors (i.e. East Asian financial crisis). KSE-100 index dropped from 1040.19 to 789.15 due to nuclear test in Pakistan on 28 May 1998. In 2007, KSE was on the sixth number as the best performer among the emerging markets as KSE-100 showed a return of 40.19%. In the mid of April 2008, KSE-100 index gained 11.6% and on 18 April 2008, it reached to the highest level of 15676 points with a gain of 1747 points as compared to the start of 2008. After reaching such a high level, it had   fallen by 62% on 31st December, 2008 due to bad law and order and international capital flight. In 2008, due to political instability[3] and crisis, the index went down by more than a third from April to June 2008.

The financial crises of 2008 were worse than the Asian financial crisis 1997-1998.These were started from the last half of 2007 in the US and turn out to be more severe in 2008, and extend all over the world due to globalization and technological advancement (Ali & Zafar, 2012). Developing countries were also affected by the financial global crisis (2007-08) but the intensity was different according to their collaboration with the world markets and the structure of their economies. The exports and foreign direct investment in developing countries were much affected due to this crisis (Iqbal, 2010).

The following were the major consequences of financial crisis of 2008:

- The 2007-08 was one of the most chaotic years in the history of Pakistan because of an increase in inflation.

- Increases in interest rates by the State Bank of Pakistan increases the inflation rate in the month of May 2008, which ultimately causes a reduction in the stock prices.

- On 18th, April 2008, KSE-100 index reached at its peak having 15676 points in its history, while (due to global financial crisis, political environment of Pakistan) it was dropped by 62% in 31, December 2008 since April 2008.

- In 2007-08, KSE-100 index dropped, which was more than 10% as compared to previous years.

The performance of the stock market of Pakistan is affected from time to time due to various macroeconomic variables and terrorism attacks. If stock prices show the upward movement then it will attract the foreign and domestic investors and ultimately cause to increase investment and output of the economy. If there is any relationship among macro and non-macroeconomic variables with stock prices, then the crisis can be avoided by making efficient policies and controlling adverse fluctuations in macroeconomic variables in order to stabilize the stock market.

This study aims to explore whether there are long run and short run dynamic interactions among macroeconomic variables (exchange rates, consumer price index, interest rates, market size, trade openness, oil prices, & gold prices), terrorism, and stock prices.

Literature Review

Imran et al. (2012) used Granger causality and Johansen's co-integration (1988) techniques to check the short-run and the long-run relation between macroeconomic variables (interest rate, treasury bills, exchange rates, inflation rate) and Karachi Stock Exchange (General index of KSE of all share prices). They used monthly data from January 2005 to December 2010. The results described that there was no Granger causality between KSE, the inflation rate, and treasury bills, while one-way Granger causality exist between KSE and the interest rate. Further, bi-directional Granger causality exist between stock prices and the exchange rate.

A wave of fear had been created among the people due to terrorism and affects the economy by a number of ways: decrease in growth, investment, and stock returns (Aurangzeb & Dilawar, 2012). The terrorism also, has a negative effect on the stock market. The strategies should be diversified to decrease the impact of terrorism (Chesney et al., 2010).

Lee et al. (2012) used the monthly data consisting 240 observations from January 1992 to December 2011 to check the impact of macroeconomic variables (interest rate, money supply, crude oil prices, and consumer price index) on the Kulalumpur market composite index (consists of top 30 companies). The study used the techniques such as OLS, Johansen co-integration, Granger causality test, Variance decomposition, and impulse response function. The impact of interest rate and crude oil prices on stock market returns were negative, while money supply and inflation had a positive effect. Aurangzeb and Dilawar (2012) checked the impact of terrorism (bombing, armed isolation, assassination, and hostage) on KSE 30 index of Pakistan by taking monthly data from 2004-2010. The results found through regression and Granger causality test that a negative relation exist between them.

Hina and Naveed (2011) used co-integration and Granger causality tests in order explore the effect of the gold price on KSE-100 index. They used monthly data from December 1, 2005 to December 31, 2010. The study found a negative relation between gold prices and KSE-100 index in

the short-run, while cointegration analysis showed no long-term relation between the variables.

Ali et al. (2010) studied the relation of macroeconomic variables (exchange rate, inflation, balance of trade, industrial production index, & money supply) and general price index of KSE (of Pakistan) by using monthly data from June 1990-December 2008. They concluded after applying the Johansen co integration that co integration found among stock prices with the industrial production index and inflation while money supply, exchange rate, and balance of trade had no co integration with stock prices. Using Granger causality test, they found that macroeconomic variables do not necessarily used to estimate the stock prices. They concluded that no causal relation exists between macroeconomic indicators and stock exchange prices.

Sohail and Hussain (2009) determined the short-run and the long-run relationship between stock prices of LSE (Lahore Stock Exchange of Pakistan) and macroeconomic variables (real effective exchange rate, money supply, industrial production index, CPI, and three-month Treasury bill rate). They employed the co integration and VECM on data from December 2002-June 2008. The study revealed that in the long-run, money supply, real effective exchange rate, and industrial production index had a positive impact on stock returns (LSE 25), while the impact of three-month Treasury bill rate was also positive but statistically insignificant. However, they found that stock returns negatively affected by inflation.

Rashid (2008) employed co integration and Granger causality techniques robust to structural break to check the link between stock prices and macroeconomic variables like industrial production, consumer prices, the exchange rate, and market rate of interest by taking June 1994-March 2005. He found that in the short-run, no causation exists between stock prices and macroeconomic variables. However, changes in interest rates in the short-run cause to changes stock prices. In the long-run, co integration exists among the variables. Further, error correction model reveals that bi-directional causality exists between them.

Naeem and Rashid (2002) conducted a study by taking monthly data of South Asian countries (India, Sri Lanka, Bangladesh, & Pakistan) from January 1994 to December 2000. They employed co integration, VECM, Granger causality test and concluded in India and Pakistan, there was no long-run relationship between exchange rate and stock prices but in Sri Lanka and Bangladesh, there were a long-term relation and bi-directional causality existed between the variables.
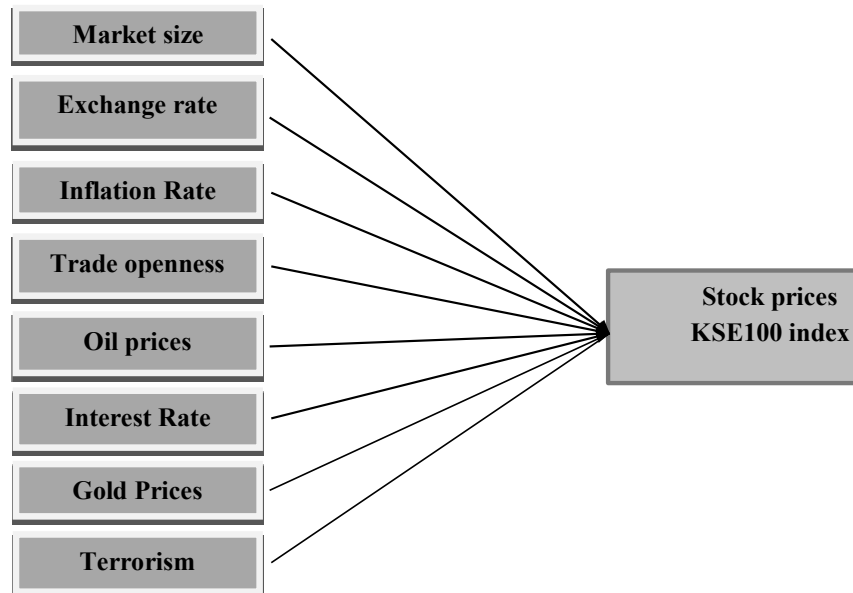
Figure1: Proposed study model

Research Methodology

The objective of this study is to check the short-run as well as the long - run relationship between macroeconomic variables, terrorism, and stock prices in Pakistan by employing Granger causality and co integration tests, robust to a structural break. In this regard, the study follows Rashid (2008), who has employed the structural break tests to examine the impact of nuclear tests on stock prices. Time series quarterly data for the period January 2000- December 2016, consisting 68 observations of each variable, will be used in this study.

Economic Function

$$LnSPt = B_0 + B_1(LnER)_t + B_2(MMR)_t + B_3(LnCPI)_t + B_4(OPP)_t + B_5(LnGP)_t + B_6(LnEP)_t +$$

$$B_7(LnIPI)_t + B_8(TE)_t + e_t \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Where, B_1, B_2, B_3, B_4, B_5, B_6, B_7, and B_8, are coefficients and e_t is the disturbance term and

all variables (except MMR and trade openness) are transformed into Ln form.

Data sources and Description of variable

Table 1
Description of variables

Variables	Proxy	Description	Unit	Source
Stock prices	KSE	KSE-100 index	Index	State bank of Pakistan (SBP)
Exchange rate	ER	Month average ER of Pakistan	Rs. Per US$	International financial Statistics (IFS)
Interest rate	MMR	Money market rate	% per annum	IFS
Inflation	CPI	Consumer prices, all items	Index, 2005=100	IFS
Trade openness	OP	(exports+imports)/GDP	In nominal domestic currency	SBP
Gold prices	GP	Gold prices	Rs. Per Troy ounce	FOREX
Energy imports	EP	Crude oil petroleum	Rs. Per barrel	IFS
Market size	IPI	Industrial production index	Index, 2005=100	IFS
Terrorism	TE	All incidents of terrorism	Bomb blast	Global terrorism data base

Statistical Techniques

The following estimation techniques will be used in this study in order to get the empirical results with the help of Eviews.

Unit root tests with structural breaks

This study considers of the 2008 financial crisis as a structural break. Hence, a series marked by stationary variation with one-time permanent change in level, in this case the standard tests of unit root may provide deceptive results. Perron (1990) described statistic to test unit root for one time change in mean. He suggested introducing a dummy in the ADF test if the breaks are known. Therefore, Perron and Vogelsang (1992) developed the Additive-Outlier test (for unit root) to examine whether the series is stationary or not when it suffers from a structural break in the data.

Additive-Outlier model

Suppose the time series is the univariate indicated by Yn and n=1, 2…. N and has a shift in

mean at time Na, so $1 < Na < N$, which is indicated by the following equation.

$$Y_n - v_1 = b_1 (Y_{n-1} - v_1) + \alpha_n \qquad \text{where} \qquad n \leq N_a$$

$$Y_n - (v_1 + v_2) = b_1 (Y_{n-1} - (v_1 + v_2)) + \alpha_n \qquad n > N_a$$

Here α_n is a disturbance term having zero mean and constant variance. It is assumed in this model that in all sub samples, b_1 (parameter) remains same and the effect of change is spontaneous, hence in each sub sample, the above model is conditionally formulated on first observation: Y_n and Y_{n+1}. When $|b_1| < 1$ and by $(v_{1+}v_2)$ for $n > N_a$.

Hence the model can be rewritten under the null hypothesis of a unit root.

$$Y_n = b_1 (Y_{n-1} (v_1 + v_2 D_{n-1}) + (v_1 + v_2 D_n) \alpha_n \qquad \text{…………………………..…..…...... (2)}$$

Where $D_n = 0$ if $n \leq N_a$ and $D_n = 1$ if $n > N_a$

By rearranging the equation:

$$\Delta Y_n = \gamma_1 Y_{n-1} - \gamma_1 v_1 - \gamma_1 v_2 D_{n-1} + v_2 \Delta D_n + \alpha_n \qquad \text{……..........……………….…..………………} (3)$$

Since $\Delta D_n = 0$ if $n \leq N_a$ or if $n > N_a + 1$ And $\Delta D_n = 1$ if $n = N_a + 1$.

The effect of ΔD_n corresponding to Y_{N1+1} is to render the associated residual zero given the initial value in the second sub sample. Furthermore, in order to control the autocorrelation, the regression procedure (eq-3) might be included in both lags of the first difference of dependent variable and intervening dummy.

$$\Delta Y_n = \gamma_1 Y_{n-1} - \gamma_1 v_1 - \gamma_1 v_2 D_{n-1} + v_2 \Delta D_n + \sum_{i=1}^m \beta_1 \Delta Y_{n-1} + \sum_{i=1}^m \lambda \Delta D_{n-1} + \alpha_n \qquad \text{……………………………} (4)$$

Asymptotic distribution of t-statistic of the estimated coefficient of Y_{n-1}, $\hat{\gamma}_1$, the null of unit root is tabularized by Perron (1990) and Perron and Vogelsang (1992).

Co-integration with structural break

The definition of co integration due to structural break split into stochastic and deterministic co integration and usual co integration test (Engle & Granger), Johnson (1988, 1991, 1995), Philips and Ouliaaris (1990) Perror and Campbell (1993) failed to discover any co integration in the presence of structural break. Therefore, this study will use the Carrion-I-Silvestre et al. (2005) co integration test, in which L-M type statistic is used to test the null of Co-integration allowing for the possibility of a structural break in both parameters of stochastic and deterministic components. This test is a multivariate extension of one described by Kwiatkowski et al. (1992) where a change occurs at a point of time in deterministic or stochastic or both deterministic and stochastic components. As per the literature of time studies, there are two types of structural change models:

a. The change in mean model (shifting occurs in deterministic (intercept) component)

b. The change in regime model (a change occurs in both deterministic and stochastic (slope) component at a time Na)

Therefore, the data generating process is of the form:

$$Y_n = p_n + ¥n + Z'_n b_1 + \alpha_n \quad\text{.. (5)}$$

$$Z_n = Z_{n-1} = \alpha_n \quad\text{.. (6)}$$

$$p_n = f(n) + p_{n-1} + \xi_n \quad\text{.. (7)}$$

Here, Z_n is a K vector of 1 (1) of regressors and $\beta_n \sim$ id (0, σ^2_ξ). The p_0 is an intercept and constant and f (n) represents a function of deterministic 0r/and stochastic components. The various models under study are stated through definition of function f (n).

The change in mean model

The change in Mean Model means change occurs only in deterministic components and described as follows:

Model -1 here ¥ = 0 and f (n) = θD (N$_a$)$_n$

Model -2 here ¥ ≠ 0 and f (n) = θD (N$_a$)$_n$

Model -3 here ¥ ≠ 0 and f (n) = θD (N$_a$)$_n$ + ςDV$_n$

Here, D (N$_a$)$_n$ = 1 for n = N$_a$ and 0 otherwise, DV$_n$ = 1 for n > N$_a$ and 0 otherwise, with Na =

ħN, $0 < ħ < 1$, presenting the date of break. According to Perron (1990), from Model (1) to Model (3) the series of error term was obtained to be of the ARMA (p and q) type along p and q orders possibly unfamiliar. Hence, under co-integration null hypothesis $\sigma^2_\xi = 0$, therefore, the models (eq. 5, eq. 6, and eq. 7) change into:

$$Y_n = qi\,(n) + Z'_n\,b_1 + \alpha_n$$ .... (8)

Here qi (n), i = (1, 2, 3}, exhibits deterministic function under the null hypothesis. Therefore,

$$\text{For Model -1, } q1(n) = p + \theta DV_n$$

$$\text{For Model -2, } q2\,(n) = p + \theta DV_n + ¥n$$

$$\text{For Model -3 , } q3\,(n) = p + \theta DV_n + ¥n + hDN^*_n$$

$$\text{Here } hDN^*_n = (n - N_a) \text{ for } n > N_a \text{ and 0 otherwise.}$$

The change in regime models

It is likely that a change occurs in both stochastic and deterministic components because of the particular structural break. In this case, the following two models proposed by Silvestre et al. (2005) are used.

Specifically, the models are expressed as follows:

$$\text{Model -4 here and } ¥ = 0 \text{ and } f\,(n) = \theta\,D\,(N_a)_n + Z'b_2 D\,(N_a)_n$$

$$\text{Model -5 here and } ¥ \neq 0 \text{ and } f\,(n) = \theta D\,(N_a)_n + hDVn + Z'b_2 D\,(N_a)_n$$

Eventually, under the null hypothesis of co-integration $\sigma^2_\xi = 0$, therefore, the models (eq. 5, eq. 6, and eq. 7) change into:

$$Y_n = qi\,(n) + Z'_n b_1 + Z'_n b_2\, DV_n + \alpha_n$$ .... (9)

The null hypothesis, the deterministic function is qi (n) and i = (4, 5}

For model -4 $q4(n) = p + \theta DV_n$

For model -5 $q5(n) = p + \theta DV_n + \yen n + hDN^{*}_{n}$

      If the regressors are not strictly exogenous, then following steps is taken in order to check the null hypothesis of co-integration against alternative no co-integration (Carrion-I-Silvestre et al., 2005).

Estimates

$$Y_n = qi(n) + Z'_n b_1 + \Delta Z'_n \mathbb{P} + \sum^{k}_{j=-k} \Delta Z'_{n-1} \lambda_j + \alpha_n \quad \text{if } i=(1, 2, 3) \quad \text{..} \quad (10)$$

$$Y_n = qi(n) + Z'_n b_1 + Z'_n b_2 DV_n + \Delta Z'_n \mathbb{P} + \sum^{k}_{j=-k} \Delta Z'_{n-j} \lambda_j + \alpha_n \quad \text{.........………………………} \quad (11)$$

Here i= (4, 5) and store the estimated residuals $e^{\hat{}}i, n,$ $i = (1, 2, 3, 4, 5).$

b) Calculation of Test statistics

$$SC^{*}_{i}(\mathfrak{h}) \quad = \quad \frac{\sum^{N}_{n=1} (S^{*}_{i, n})^2}{N^2 \breve{a}^2_{1,2}}$$

Where $\breve{a}^2_1$= consistent estimator of the long-run variance (α_n) conditioned

$$S^{*}i, n \quad = \sum^{n}_{j=1} \alpha^{\wedge *}_{i, n} \quad \text{and} \quad i= (1, 2, 3, 4, 5)$$

Error correction model with structural break

      Chang and Ho (2002) test is used in this study in order to check the Granger causality due to structural break. In order to capture the impact of a known structural break, a dummy was introduced in the usual VECM.

$$\Delta X_n = ¥_0 + p_0 b_{n-1} + \sum^p_{i=1} b_{0i} \Delta X_{n-1} + \sum^k_{i=1} \beta_{0n} \Delta Y_{n-1} + \lambda_0 DV_n + \alpha_{0n} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (12)$$

$$\Delta Y_n = ¥_1 + p_1 b^*_{n-1} + \sum^p_{i=1} b_{1i} \Delta Y_{n-1} + \sum^k_{i=1} \beta_{1n} \Delta X_{n-1} + \lambda_1 DV_n + \alpha_{1n} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (13)$$

DV_n = dummy equal to 1 for n > N_b (structural break) and 0 otherwise. αi n = i.i.d with zero mean and variance is finite. b_{n-1} and b^*_{n-1} are lagged residuals taken from the co-integration regression (e.q 8 and 9) and Δ shows the first difference operator ($\Delta X_n = X_n - X_{n-1}$).

In eq. 12, Y cause X if p_0 is statistically significant (long-run causality). If p_0 and p_1 are statistically significant, shows bi-directional long-run causality. Regarding short-run Granger causality, the joint significance of β_{0n} and β_{1n} is examined using F test.and

Results and Discussion

Descriptive Statistics of Variables

In order to analyze the normality statistical characteristics of the variables, descriptive statistics would be presented before and after the financial crisis of 2008 (structural break).

Table 2
Descriptive statistics: Of variables before and after structural break

Variables	Before Structural Break (33 Observations)			After Structural Break (35 Observations)		
	Mean	Std. Dev.	Skewness	Mean	Std. Dev.	Skewness
LnKSE 100	8.381	0.8626	-0.089	9.70	0.55	0.09
LnCPI	4.29	0.09	0.15	4.69	0.12	-0.40
LnEP	7.742	0.466	0.442	8.89	0.35	-0.64
LnER	4.3512	0.1284	0.9237	4.61	0.05	0.08
LnGP	10.091	0.381	0.536	11.56	0.28	-0.99
LnIPI	4.036	0.353	-0.150	4.833	0.280	-0.559
OPP	0.791	0.269	0.939	0.72	0.13	0.09
LnTE	2.52	0.93	-0.20	5.039	0.557	0.180
MMR	9.145	6.568	1.001	8.35	2.96	2.85

Table 2 depicts that the mean of all the variables after structural break are almost greater than

the mean of variables before the structural break. Similarly, the standard deviation of all the variables after the structural break is less than the standard deviation before the structural break. Further, in both the periods the values of skewedness of all the variables are not at much distance from the zero, therefore, the series are not being off from normality and are almost normally distributed.

Correlation Matrices

Correlation estimates are presented in order to examine the relationship between the variables before and after the structural break period.

Table 3 (a)
Correlation before structural break

	KSE	CPI	MMR	ER	GP	IPI	OPP	EP	TE
KSE	1								
CPI	0.93	1							
MMR	-0.86	-0.77	1						
ER	0.67	0.73	-0.34	1					
GP	0.94	0.93	-0.74	0.80	1				
IPI	0.96	0.87	-0.87	0.61	0.90	1			
OPP	0.26	-0.10	0.23	-0.25	-0.31	-0.42	1		
EP	0.92	0.88	-0.69	0.81	0.94	0.90	-0.37	1	
TE	0.55	0.56	-0.30	0.75	0.64	0.55	-0.51	0.73	1

Note: All the variables are in natural logarithmic form except money market rate and openness.

Table 3(a) shows that before structural break, KSE-100 index is strongly positively correlated with consumer price index (Lee et al., 2012), Sohail and Hussain (2011), energy prices, gold prices, and industrial production index. However, stock prices negatively correlate with the money market rate. Further, stock prices moderately positively related with exchange rate ((As shown by Sohail and Hussain (2011), Smith (1992), Solnik (1987), Aggarwal (1981)), openness (Hajra et al., 2007) and terrorism.

Table 3 (b)
Correlation after structural break

	KSE	CPI	MMR	ER	GP	IPI	OPP	EP	TE
KSE	1								
CPI	0.93	1							
MMR	0.39	0.49	1						
ER	0.04	0.03	0.26	1					
GP	0.56	0.76	0.23	-0.33	1				

(Table Continued...........)

IPI	0.91	0.88	0.32	-0.09	0.72	1		
OPP	0.41	0.61	0.31	-0.04	0.56	0.28	1	
EP	-0.03	0.10	-0.14	-0.43	0.45	0.19	0.24	1	
TE	0.36	0.54	0.28	-0.19	0.64	0.43	0.55	0.57	1

Note: All the variables are in natural logarithmic form except money market rate and openness.

The table 3 (b) shows that after a structural break, KSE-100 index strongly positively correlated with Consumer price index, market size, and weekly positive correlated with interest rate, exchange rate, openness, and terrorism and negatively week correlated with the energy prices.

Results of Unit Root test (changing mean) with structural breaks

Perron and Vogelsang (1992) proposed the additive-Outlier model to test the unit root in the series allowing one-time change in mean. The null and alternative hypotheses are as follows:

Hypotheses:

H_0: The series has a unit root (non stationary)
H_a: The series does not follow unit root (stationary)

The results of this test at both level and first difference are presented in the following table.

Table 4
Additive-Outlier Model

Variables Series	Perron and Vogelsang test, *n* β´1 (*AO, Na, k*)					
	Test statistics					
	At level			At first difference		
	K=0	**K=1**	**K=2**	**K=0**	**K=1**	**K=2**
LnKSE	-0.11	-0.12	-0.03	-11.12*	-3.16*	-6.15*
LnCPI	1.34	1.45	1.13	-9.34*	-7.13*	-3.25*
LnEP	0.36	-0.12	-0.11	-9.14*	-6.71*	-6.97*
LnER	-2.42	-2.01	-1.12	-10.18*	-6.07*	-9.42*
LnGP	0.40	1.09	1.4	-13.17*	-10.14*	-7.20*
LnIPI	-1.98	-1.39	-3.13	-10.07*	-6.12*	-7.57*
LnOPP	-1.5	-0.03	0.96	-24.14*	-10.26*	-11.12*
LnTE	-7.4*	-3.12	-4.02	-21.17*	-11.86*	-10.26*
MMR	-5.12*	-2.16	-3.14	-16.15*	-13.45*	-9.25*

Critical values determined on the no. of observations (N) and the order of Lags K. Here K is equal to 0, 1 and 2 and N is 68. *,**, *** shows significant at 1%, 5% and 10 % respectively. For critical values of this test, see Annex- A.

From Table 4, it is clear that the null hypothesis of a unit root of all the variable series, at first difference, is rejected, showing all the series are stationary at first difference. Hence, all the variables are integrated of order one. The results of unit root tests are consistent with the Rashid (2008).

Results of cointegration test with structural breaks

Due to the presence of structural break in the date, Carrion-I-Silvestre et al. (2005) co-integration test is used in this study, in which LM type statistic is used to test the co-integration allowing for the possibility of a structural break in both parameters of stochastic and deterministic components. Therefore, the hypotheses of the test are as follows:

Hypotheses:

H_0: There is co-integration among the variables.
H_a: There is no co-integration among the variables.

Therefore, the following five models are estimated in presence of structural break due to the 2008 financial crisis.

Model 1 : A change occurs in deterministic (intercept) component.

Model 2 : A change occurs in deterministic (intercept) component including linear trend.

Model 3 : A change occurs in linear trend.

Model 4 : A change occurs in both deterministic (intercept) and stochastic (slope) component.

Model 5 : A change occurs in both deterministic (intercept) and stochastic (slope) component and
       linear trend.

Table-5 shows the calculated test statistics for all these five models.

Table 5
Co-integration test of known structural break

Model A	Model B	Model C	Model D	Model E
		K= 0		
0.0107	0.00075	0.00066	0.00016	0.00007
		K= 1		
0.0057	0.00034	0.00035	0.00008	0.00004
		K= 2		
0.0021	0.00019	0.00021	0.00005	0.00002
		K= 3		
0.00073	0.00010	0.00001	0.00002	0.00001

Critical values of this test for 1-5 models based on the K and ħ, see Annex-B.

The understudy period is from January 2000 to December 2016, and structure break occurs on May 2008 due to the financial crisis. Therefore, Break function $= ħ = Na/N$, $(ħ = 33/68= 0.48)$. It is observed from the table that all the estimated values for Model 1, 2, 3, 4 and 5 at different lags are less than from their respective critical values. These estimated values move downward by increasing lag orders. Therefore, we accept the null hypothesis of co integration. It means the underlying variables are co integrated in the long-run. These findings are consistent with Imran et al. (2012), Sohail and Hussain (2011), Ali et al. (2010), Rashid (2008) and Raza et al. (2012).

Results of Error Correction Model with Structural Break

In order to determine the long-run and short-run association between the variables, following tables shows the estimated value of error correction model with a structural change at known date.

Table 6

Error Correction Model with Known Structural Break for long run and short run Granger causality

(a) Shift in mean

Hypothesis (H0)	Estimates of error correction term	F-statistics
KSE does not Granger cause CPI	-0.19*	2.17
CPI does not Granger cause KSE	-0.001	0.027
KSE does not Granger cause EP	-0.139*	0.58
EP does not Granger cause KSE	-0.02	2.83
KSE does not Granger cause ER	-0.19*	1.05
ER does not Granger cause KSE	-0.007	1.13
KSE does not Granger cause GP	-0.19*	0.32
GP does not Granger cause KSE	-0.013	0.27
KSE does not Granger cause IPI	-0.198*	1.43
IPI does not Granger cause KSE	-0.025	1.21
KSE does not Granger cause OPP	-0.286*	1.2
OPP does not Granger cause KSE	-0.082*	0.002
KSE does not Granger cause TE	-0.21*	1.17
TE does not Granger cause KSE	-0.27	0.20
KSE does not Granger cause MMR	-0.18*	2.19
MMR does not Granger cause KSE	-0.78	0.16

(b) Shift in mean including linear trend

Hypothesis (H0)	Estimates of error correction term	F-statistics
KSE does not Granger cause CPI	-0.21*	2.76*
CPI does not Granger cause KSE	-0.03	0.0213
KSE does not Granger cause EP	-0.16*	0.39
EP does not Granger cause KSE	-0.021	1.69
KSE does not Granger cause ER	-0.197*	0.86
ER does not Granger cause KSE	-0.012	1.04
KSE does not Granger cause GP	-0.12*	0.78
GP does not Granger cause KSE	-0.03	1.18
KSE does not Granger cause IPI	-0.14*	1.39
IPI does not Granger cause KSE	-0.04*	1.12
KSE does not Granger cause OPP	-0.19*	1.14
OPP does not Granger cause KSE	-0.15*	0.004
KSE does not Granger cause TE	-0.19*	2.19
TE does not Granger cause KSE	-0.197	0.07
KSE does not Granger cause MMR	-0.18*	2.01
MMR does not Granger cause KSE	-0.09	0.24

(c) Shift in mean and regime

Hypothesis	Estimates of error correction term	F-statistics
KSE does not Granger cause CPI	-0.31*	2.23
CPI does not Granger cause KSE	-0.04	0.005
KSE does not Granger cause EP	-0.14*	0.56
EP does not Granger cause KSE	0.108	1.023
KSE does not Granger cause ER	-0.230*	0.68
ER does not Granger cause KSE	-0.014	0.69
KSE does not Granger cause GP	-0.26*	0.056
GP does not Granger cause KSE	-0.07	0.76
KSE does not Granger cause IPI	-0.45*	1.9
IPI does not Granger cause KSE	-0.07	2.05
KSE does not Granger cause OPP	-0.18*	1.37
OPP does not Granger cause KSE	0.37*	0.053
KSE does not Granger cause TE	-0.28*	1.08
TE does not Granger cause KSE	-0.76	0.29
KSE does not Granger cause MMR	-0.21*	2.76
MMR does not Granger cause KSE	-0.56	0.09

(d) Shift in mean and regime including linear trend

Hypothesis	Estimates of error correction term	F-statistics
KSE does not Granger cause CPI	-0.190*	3.20*
CPI does not Granger cause KSE	-0.005	1.27
KSE does not Granger cause EP	-0.39*	0.17
EP does not Granger cause KSE	-0.06	0.334
KSE does not Granger cause ER	-0.345*	0.78
ER does not Granger cause KSE	-0.028*	1.28
KSE does not Granger cause GP	-0.34*	0.38
GP does not Granger cause KSE	-0.067	0.67
KSE does not Granger cause IPI	-0.409*	0.87
IPI does not Granger cause KSE	-0.028*	2.09
KSE does not Granger cause OPP	-0.49*	1.09
OPP does not Granger cause KSE	0.035*	0.45
KSE does not Granger cause TE	-0.342*	3.97
TE does not Granger cause KSE	0.034	1.25
KSE does not Granger cause MMR	-0.31*	2.98
MMR does not Granger cause KSE	-0.67	0.154

*, shows significant at 10%

Table 6. depicts the error correction model with known structural break has been applied to check the direction of causality among the variables. The results of error correction model with specification shift in mean (a) and shift in mean plus regime (c) are almost the same. This shows only in the long-run bi-directional causality exist between trade openness and stock process while all other variables have uni-directional causality which runs from stock prices to macroeconomic variables.

Further, the results of the error correction model with a shift in mean plus linear trend (b) and a shift in mean and regime plus linear trend (d) are also same. That is, long-run bi-directional causality exists which running from stock prices to the exchange rate, industrial production index, and trade openness and all other variables have a unidirectional causal link which runs with the stock prices to consumer price index, the money market interest rate, terrorism, gold prices, and oil prices. The F-values indicate that the short-run uni-directional causality exists which runs from stock prices to the consumer price index. The result of this study is consistent with Imran et al. (2012), who show, bi-directional Granger causality exists between stock prices and the exchange rate. The results are consistent with Rashid (2008), who found that in the short-run, no causation exists between stock prices and macroeconomic variables (industrial production and consumer prices).

Conclusions and Recommendations

The results of this study are based on empirical estimation. Therefore, this study can be useful for general public, policy makers, investors, Central Bank and economist, so that they can stabilize the performance of the stock market and care should be taken in designing government policies. Therefore, for growth and healthy performance of stock market, the industrial production should be increased in the country. The Government should give the incentives to the producers to increase their production, so that the impact of crisis can be reduced. Therefore, the volatility in interest rate should be controlled by the Government to build the confidence of investors.

Terrorism also has negative impact on stock prices. Therefore, it will be controlled and remedial measures should be taken by the concerned authorities to enhance the performance of stock market. The strategies should be diversified to decrease the impact of terrorism (Chesney et al., 2010). Further, trade openness should also be increased.

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Appendix -A

Percentage points of the distribution <u>of $n \, \hat{\gamma}_1$ (AO, Na, k)</u>, Additive Outlier Model

		1.0%	2.5%	5.0%	10.0%	90.0%	95.0%	97.5%	99.0%
$N = 50$	$k = 0$	-5.0	-4.73	-4.41	-4.07	-2.23	-2.02	-1.84	-1.64
	$k = 2$	-4.92	-4.54	-4.21	-3.86	-2.06	-1.85	-1.66	-1.50
	$k = 5$	-4.70	-4.28	-3.96	-3.63	-1.90	-1.70	-1.52	-1.36
	$k = k^*$	-5.28	-5.02	-4.76	-4.45	-2.58	-2.35	-2.16	-1.95
	$k = k(F)$	-5.18	-4.92	-4.64	-4.35	-2.37	-2.11	-1.94	-1.75
	$k = k(t)$	-5.20	-4.95	-4.67	-4.33	-2.36	-2.13	-1.95	-1.74
$N = 100$	$k = 0$	-5.05	-4.73	-4.41	-4.10	-2.35	-2.14	-1.95	-1.73
	$k = 5$	-4.6	-4.3	-4.0	-3.78	-2.13	-1.91	-1.69	-1.47
	$k = k^*$	-5.4	-4.9	-4.6	-4.34	-2.58	-2.33	-2.12	-1.89
	$k = k(F)$	-5.2	-4.8	-4.5	-4.22	-2.43	-2.20	-1.94	-1.73
	$k = k(t)$	-5.2	-4.8	-4.5	-4.20	-2.45	-2.23	-2.00	-1.77
$N = 150$	$k = 0$	-5.0	-4.7	-4.4	-4.12	-2.38	-2.16	-1.95	-1.64
	$k = 2$	-4.9	-4.5	-4.3	-4.09	-2.29	-2.04	-1.86	-1.66
	$k = 5$	-4.8	-4.4	-4.1	-3.89	-2.19	-1.97	-1.76	-1.57
	$k = k^*$	-5.2	-4.9	-4.6	-4.36	-2.53	-2.30	-2.08	-1.85
	$k = k(F)$	-5.1	-4.8	-4.5	-4.24	-2.42	-2.17	-1.95	-1.75
	$k = k(t)$	-5.1	-4.8	-4.5	-4.23	-2.41	-2.16	-1.95	-1.75
$N = \infty$		-4.9	-4.6	-4.4	-4.19	-2.51	-2.28	-2.10	-1.8

k is the truncation lag parameter

$k = k^*$: the is chosen such that t-statistic for testing the coefficient of the lagged is equal to one is minimized.

$k = k(F)$: the F-test is used to choose the maximum lag order, i.e., whether thmaxthfficients of -maxth lag is significant.

$k = k(t)$: the is chosen such that the coefficient on the last included area g of the first-differences of the data is significant.

Appendix-B

Asymptotic critical values for the models 1, 2, 3, 4, and 5

Model 1

	$\hbar = 0.1$	$\hbar = 0.2$	$\hbar = 0.3$	$\hbar = 0.4$	$\hbar = 0.5$	$\hbar = 0.6$	$\hbar = 0.7$	$\hbar = 0.8$	$\hbar = 0.9$
					k =1				
90%	0.19	0.15	0.13	0.12	0.12	0.12	0.14	0.16	0.19
95%	0.25	0.20	0.18	0.16	0.15	0.15	0.18	0.21	0.25
97.5%	0.33	0.26	0.23	0.19	0.18	0.19	0.23	0.27	0.32
99%	0.45	0.35	0.29	0.25	0.22	0.24	0.29	0.36	0.43
					k =2				
90%	0.1336	0.1157	0.1079	0.1020	0.1029	0.1033	0.1075	0.1179	0.1342
95%	0.1796	0.1557	0.1400	0.1306	0.1292	0.1297	0.1397	0.1566	0.1815
97.5%	0.2325	0.2007	0.1759	0.1622	0.1557	0.1600	0.1772	0.2014	0.2314
99%	0.3116	0.2631	0.2259	0.2035	0.1903	0.1998	0.2306	0.2643	0.3091
					k =3				
90%	0.1007	0.0907	0.0856	0.0847	0.0840	0.0852	0.0853	0.0911	0.1015
95%	0.1319	0.1179	0.1094	0.1063	0.1051	0.1067	0.1081	0.1174	0.1337
97.5%	0.1670	0.1490	0.1338	0.1276	0.1271	0.1301	0.1331	0.1463	0.1707
99%	0.2238	0.1989	0.1773	0.1602	0.1594	0.1624	0.1757	0.1956	0.2330
					k =4				
90%	0.0799	0.0738	0.0712	0.0704	0.0706	0.0711	0.0719	0.0731	0.0800
95%	0.1037	0.0924	0.0873	0.0878	0.0874	0.0874	0.0902	0.0927	0.1036
97.5%	0.1304	0.1151	0.1091	0.1073	0.1056	0.1060	0.1094	0.1164	0.1328
99%	0.1754	0.1502	0.1385	0.1365	0.1350	0.1355	0.1398	0.1487	0.1717

Model 2

	$\hbar = 0.1$	$\hbar = 0.2$	$\hbar = 0.3$	$\hbar = 0.4$	$\hbar = 0.5$	$\hbar = 0.6$	$\hbar = 0.7$	$\hbar = 0.8$	$\hbar = 0.9$
k = 1									
90%	0.0827	0.0736	0.07447	0.0821	0.0840	0.0808	0.0749	0.0736	0.0819
95%	0.1028	0.0885	0.0907	0.1021	0.1060	0.0994	0.0890	0.0893	0.1011
97.5%	0.1228	0.1045	0.1062	0.1229	0.1315	0.1195	0.1035	0.1066	0.1197
99%	0.1537	0.1305	0.1251	0.1508	0.1642	0.1486	0.1219	0.1301	0.1436
k = 2									
90%	0.0700	0.0630	0.0650	0.0690	0.0693	0.0676	0.0647	0.0638	0.0696
95%	0.0865	0.0759	0.0774	0.0852	0.08558	0.0841	0.0777	0.0778	0.0855
97.5%	0.1033	0.0891	0.0909	0.1023	0.1037	0.1023	0.0927	0.0918	0.1022
99%	0.1273	0.1095	0.1083	0.1254	0.1348	0.1255	0.1103	0.1119	0.1244
k = 3									
90%	0.0594	0.0554	0.0571	0.0581	0.0584	0.0581	0.0566	0.0556	0.0593
95%	0.0728	0.0670	0.0692	0.0712	0.0725	0.0710	0.0677	0.0667	0.0728
97.5%	0.0871	0.0784	0.0803	0.0843	0.0877	0.0851	0.0788	0.0780	0.0873
99%	0.01064	0.0941	0.0971	0.1035	0.1103	0.1044	0.0961	0.0949	0.1074
k = 4									
90%	0.0507	0.0490	0.0501	0.0509	0.0510	0.0502	0.0495	0.0489	0.0512
95%	0.0616	0.0588	0.0606	0.0617	0.0621	0.0614	0.0598	0.0592	0.0623
97.5%	0.0729	0.0691	0.0724	0.0728	0.0741	0.0738	0.0702	0.0699	0.0749
99%	0.0898	0.0846	0.0864	0.0886	0.0938	0.0916	0.0852	0.0845	0.0920

Model 3

	$\hbar = 0.1$	$\hbar = 0.2$	$\hbar = 0.3$	$\hbar = 0.4$	$\hbar = 0.5$	$\hbar = 0.6$	$\hbar = 0.7$	$\hbar = 0.8$	$\hbar = 0.9$
					k =1				
90%	0.0842	0.0747	0.0663	0.0614	0.0604	0.0619	0.0670	0.0746	0.0849
95%	0.1059	0.0919	0.0809	0.0730	0.0729	0.0753	0.0824	0.0921	0.01061
97.5%	0.1280	0.1102	0.0973	0.0863	0.0844	0.0883	0.0986	0.1098	0.1289
99%	0.1578	0.1313	0.1197	0.1039	0.1013	0.1086	0.1195	0.1369	0.1580
					k =2				
90%	0.0723	0.0632	0.0579	0.0542	0.0533	0.0542	0.0575	0.0631	0.0714
95%	0.0892	0.0775	0.0694	0.0651	0.0639	0.0646	0.0706	0.0771	0.0884
97.5%	0.1069	0.0925	0.0825	0.0761	0.0752	0.0756	0.0842	0.0912	0.1065
99%	0.1314	0.1161	0.1019	0.0940	0.0903	0.0915	0.1021	0.1118	0.1335
					k =3				
90%	0.0602	0.0536	0.0507	0.0475	0.0470	0.0479	0.0503	0.0539	0.0593
95%	0.0740	0.0657	0.0613	0.0575	0.0561	0.0571	0.0608	0.0660	0.0728
97.5%	0.0884	0.0784	0.0724	0.0675	0.0663	0.0675	0.0723	0.0782	0.0875
99%	0.1106	0.0969	0.0888	0.0805	0.0788	0.0816	0.0881	0.0950	0.1076
					k =4				
90%	0.0523	0.0472	0.0443	0.0429	0.0421	0.0423	0.0443	0.0470	0.0520
95%	0.0638	0.0574	0.0529	0.0511	0.0498	0.0506	0.0531	0.0567	0.0637
97.5%	0.0757	0.0684	0.0626	0.0596	0.0578	0.0592	0.0622	0.0672	0.0758
99%	0.0921	0.0834	0.0756	0.0711	0.0699	0.0712	0.0769	0.0819	0.0928

Model 4

	$\hbar = 0.1$	$\hbar = 0.2$	$\hbar = 0.3$	$\hbar = 0.4$	$\hbar = 0.5$	$\hbar = 0.6$	$\hbar = 0.7$	$\hbar = 0.8$	$\hbar = 0.9$
				k =1					
90%	0.1908	0.1547	0.1265	0.1098	0.1044	0.1087	0.1276	0.1502	0.1898
95%	0.2560	0.2067	0.1670	0.1395	0.1309	0.1392	0.1682	0.2041	0.2571
s97.5%	0.3295	0.2631	0.2098	0.1729	0.1603	0.1724	0.2176	0.2657	0.3341
99%	0.4463	0.3449	0.2699	0.224	0.1941	0.2145	0.2862	0.3563	0.4449
				k =2					
90%	0.1319	0.1087	0.0885	0.0760	0.0735	0.0765	0.0878	0.1064	0.1351
95%	0.1759	0.1459	0.1163	0.0969	0.0922	0.0988	0.1141	0.1423	0.1810
97.5%	0.2288	0.1873	0.1485	0.1198	0.1123	0.1224	0.1464	0.1853	0.2349
99%	0.3068	0.2510	0.1942	0.1578	0.1419	0.1565	0.1950	0.2482	0.3261
				k =3					
90%	0.0983	0.0803	0.0664	0.0572	0.0542	0.0562	0.0648	0.0793	0.0973
95%	0.1286	0.1049	0.0851	0.0721	0.0672	0.0715	0.0824	0.1037	0.1291
97.5%	0.1638	0.1363	0.1079	0.883	0.0819	0.0894	0.1043	0.1317	0.1651
99%	0.2307	0.1816	0.1425	0.1145	0.1039	0.1127	0.1367	0.1757	0.2165
				k =4					
90%	0.0772	0.0616	0.0512	0.0451	0.0423	0.0445	0.0507	0.0620	0.0771
95%	0.0981	0.0791	0.0648	0.0548	0.0514	0.0540	0.0646	0.0799	0.0986
97.5%	0.1225	0.1002	0.0806	0.0658	0.0613	0.0660	0.0804	0.1007	0.1230
99%	0.1579	0.1312	0.1048	0.0852	0.0766	0.0837	0.1208	0.1364	0.1623

Model 5

	$\hbar = 0.1$	$\hbar = 0.2$	$\hbar = 0.3$	$\hbar = 0.4$	$\hbar = 0.5$	$\hbar = 0.6$	$\hbar = 0.7$	$\hbar = 0.8$	$\hbar = 0.9$
k=1									
90%	0.0808	0.0654	0.0538	0.0463	00436	0.0462	0.0538	0.0648	0.0801
95%	0.1004	0.0804	0.0659	0.0552	0.0512	0.0551	0.0650	0.0799	0.0981
97.5%	0.1205	0.0974	0.0784	0.0645	0.0587	0.0633	0.0780	0.0959	0.1185
99%	0.1480	0.1223	0.0960	0.0763	0.0681	0.0765	0.0938	0.1196	0.1469
k =2									
90%	0.0671	0.0540	0.0488	0.0387	0.0363	0.0386	0.0448	0.0536	0.0671
95%	0.0832	0.0661	0.0544	0.0462	0.0423	0.0455	0.0548	0.0668	0.0836
97.5%	0.0994	0.0790	0.0639	0.0534	0.0488	0.0535	0.0658	0.0787	0.1011
99%	0.1218	0.0980	0.0795	0.0641	0.0574	0.0636	0.0815	0.1002	0.1276
k =3									
90%	0.0561	0.0457	0.0375	0.0323	0.0309	0.0324	0.0377	0.0458	0.0562
95%	0.0696	0.0559	0.0454	0.0379	0.0360	0.0386	0.0456	0.0566	0.0690
97.5%	0.0828	0.0658	0.0542	0.0444	0.0406	0.0448	0.0542	0.0684	0.0837
99%	0.1040	0.0821	0.0660	0.0529	0.0474	0.0541	0.0666	0.0840	0.1054
k =4									
90%	0.0484	0.0391	0.0326	0.0282	0.0266	0.0280	0.0324	0.0397	0.0484
95%	0.0597	0.0476	0.0393	0.0329	0.0308	0.0333	0.0388	0.0483	0.0590
97.5%	0.0719	0.0572	0.0463	0.0379	0.0353	0.0385	0.0462	0.0571	0.0712
99%	0.0899	0.0703	0.0570	0.0454	0.0411	0.0462	0.0557	0.0707	0.0866

CORPORATE GOVERNANCE AND REAL EARNINGS MANAGEMENT: EVIDENCE FROM PAKISTAN STOCK EXCHANGE

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Abstract

This paper examines the effect of corporate governance on real earning management among the firms that listed at Pakistan stock exchange for the time period of 2009 to 2014. Corporate governance examined through the attributes of board size, audit committee independence and ownership structure whereas real earning management has been quantified using cash flow from operations. Findings indicate that board attributes and audit committee independence have a significant effect on controlling real earning management. The organization has less involved in earning management due to strong weight from institutions and controlling shareholders. We furthermore found out that the larger the firm in size the more it takes interest in real earning management practices.

Keywords: Corporate Governance, Accrual Earning Management, Real Earnings Management, Ownership Structure.

JEL Classification: G100

Introduction

The earning management has been encouraged to an extending vitality because of the accounting frauds like WorldCom, Enron, One Tel, Tran smile Group, Afribank, Cadbury, Health South and so on. The increasing attention to the quality of reporting earning makes the study of earning management important (Levitt, 2000). According to Healy and Wahlen (1999), earning management is the mode of changing the reports to make it less straightforward, with the intention to mislead the stakeholders about the organization or to effect firm results. Investors who are concern with stock return examine the earning frequently which leads the management to manipulate the earning in their own favor. McKee (2005) explained the strategies of firm association in earning manipulations that change in resource amount, a measure of stock recorded, depreciation amount, guarantee cost and evaluated Post-Employment benefits.

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After the fall of massive corporations in 2001-2002 because of the accounting frauds and in 2008 the worldwide financial crises transpire, corporate governance component has formed and implemented to control the opportunistic conduct of management. The main reason for using corporate governance attribute to alienate the interest of management with all stakeholders and to enhance the legitimacy of financial data.

Studies have been done to examine the effect of corporate governance on earnings management, particularly on accrual type, for example, forceful income acknowledgment and overstate of inventories or receivable accounts and so on. Organizations involve in accrual-based earnings management as well as utilize another strategy that is real management, for instance, putting off production or giving a deal rebate to accomplish the objective. By utilizing the real earning management, there is miss use of accurate corporate exercises; which leads towards esteem diminishment of the firm.

To test the validity and generalizability, it's basic to ascertain the role of CG in the perspective of REM. Graham, Harvey, and Rajgopal (2005) provided evidence that 80 % of management preferred real earning management over accrual earning management to demonstrate the abnormal state of earning. In distinction to previous studies, concentrate on real earning management is relatively new and scarce. In light of Graham's (2005) significance of REM, this study examines whether certain characteristics of governance restricts the firm to involve in real earnings management.

The study is proposed owing to take after several issues. Initially, the expanding pattern of tight accounting standards and strict rules, regulations, and laws, the vast majority of the organizations move towards real earning methods. Second, real earning influences the firm's worth and increase the information asymmetry amongst management and stakeholders that is to a great degree extreme to see by media, evaluators, and controllers.

The composition of board and ownership structure is vital variables of corporate governance in compelling accrual or real earning management. Past studies concentrated on the creation of board qualities in relation to real earning (Visvanathan, 2008). In any case, no study concentrates on whole corporate governance elements. This study combines all variables that are board, audit committee, and ownership structures to explore real earning management.

The study contributes worth added to existing literature within the many aspects. To begin with, most studies concentrate just a single measure that's accrual earning management and overlook the other methodology that's real earning management which might befuddle. Second, the study makes a contribution to the literature of corporate governance through the aspects of institutional possession that assumes a dynamic role in mitigating opportunist real earning management. Third, this study provides proof through which the regulators ought to pay special attention to reinforce the role of management in the firm and financial specialists can likewise increase promote knowledge into

attributes of board members.

This paper has been organized in the following way. Section 2 gives a review of the literature. Section 3 defines the variables used, sample and data source employed and also the methodology which is implemented in this study; Section 4 explains the empirical finding whereas section 5 concludes the study.

Literature Review

In the previous literature, there is no consensus of corporate governance and earning management, but several studies have been done to find out the relationship, most of the studies found out a significant relationship (Healy & Wahlen 1999; Garcia-Meca & Sanchez-Ballesta, 2009; Obid & Demikha 2011; Yasar, 2013; Uwuigbe, Peter, & Oyeniyi, 2014; & Kuoa, Ningb, & Song 2014). Chen and Zhang considered the influence of corporate governance code (2002) on controlling earning management. The codes clarified the vigor of minority shareholders over the controlling shareholders in lessening earning management in Chinese listed firms.

In financial literature, earning management has two types, accrual-based earning management and real earning management (Petroni, 1992). Several readings gave confirmation in the engagement of controlling earning through real earning management along with accrual method (Roychowdhury 2006; Zhu & Lu, Visvanathan 2008). Roychowdhury (2006) clarified real earning as the takeoff from typical operational practices, for example, price discounts, lessening of discretionary expenditures and overproduction to meet certain procuring edges. Management involved in earning management because of the adaptability of GAAP. As indicated by Visvanathan (2008), firms endeavored to accomplish benchmark by leaving from ordinary working exercises and proposed that corporate governance factors don't assume a noteworthy part in moderating real earning management.

Real earning management has not violated generally accepted accounting principles GAAP, but the possibility of detection of violation by regulators and auditors is lower due to high concealment and low-risk characteristics. Graham, Harvey, and Rajgopal (2005) gave prove that managers took part in REM in order to attain their goals so they switch from accounting methods towards real earning. Cohen, Dey, and Lys (2008) broke down both accrual and real earning management over the day and age of pre and post-SOX they recommended that level of real management techniques have expanded and declined in the accrual technique after the time of SOX. Dechow, Sloan, and Sweeney (1996) uncovered diverse intentions of management to control the acquiring like fancied to raise outer financing certainly or maintain a strategic distance from obligation advantageous limitations.

Gunny (2010) and Burns and Merchant (1990) clarified the ability of monetary officials to control acquiring through real than accruals. To begin with, ex-post influential accounting decisions concerning accumulations are at higher risk for Securities and Exchange Commission

(SEC) investigation. Second, the firm had constrained adaptability to oversee collections. Third, accrual occurred at the end of the financial year and administrators confronted vulnerability to which accounting medications the reviewer would permit around then, though RM choices must be made preceding financial year-end.

In Pakistan, a little work is executed on the subject of corporate governance (CG) and earning management (EM). Javed and Iqbal (2008) studied that in Pakistan, company ownership is concentrated only by few large stockholders. Ali Shah, Butt, and Hassan (2009) observed the relationship between corporate governance and accrual earning management, but still, there is a gap in the study of corporate governance (CG) and real earning management (REM).

Data and Methodology

This paper considers all firms listed on Pakistan stock exchange for which information is available. The financial sector is excluded due to strict rules and regulations and changes in the revenue system. Firms that are not listed or for which all the information is not available also excluded. Consequently, the initial sample reduced to 70 non-financial firms with 420 observations.

Measurement of Variables

Real Earning Management

The study follows Roychowdhury (2006) methodology to estimate the real earning management i.e. Abnormal cash flow from operations, which is the linear function of sales and change in sales within the current period. First, we use regression analysis to establish the normal level of cash flow from operations from equation 1, Second, the abnormal cash flow from operations is considered as the residual which is the distinction between actual level and calculable level (Cohen & Zarowin, 2010; Zang 2011).

The model for the detection of real earning management is as follow

$$CFO_{it} / A_{t-1} = \alpha_0 + \alpha_1(1 / A_{t-1}) + \beta_1 \ (S_t / A_{t-1}) + \beta_2(\Delta S_t / A_{t-1}) + \mu_t \quad \dotsc\dotsc\dotsc\dotsc\dotsc (1)$$

CFO refer to normal cash flow from operations, A_{t-1} is the total assets of the previous period, S_t is the annual sale revenue, ΔS_t is the change in sales compared with the sales amount in the previous period.

Measures of independent variables

Board characteristics

Board size represents the ideal quantities of executives within the board (Zhou & Chen, 2004; Uwuigbe, Peter & Oyeniyi, 2014). Smaller boards enhance participation, involvement, and cohesiveness than larger boards as a result of they don't face the problem of organizing and coordinating oversized numbers of directors. Then again, larger boards have incredible quantities of experienced directors, they convey the advisory group work and increment the capacity to monitoring (Xie, Davidson, & DaDalt, 2003) so we don't predict the direction of board size (BS) and real earning management (REM).

Board independence supposed to reduce the controlling shareholders to manipulate the earning and improve corporate transparency and accounting quality (Kuoa, Ningb, & Song, 2014). Those companies which have a high proportion of independent non-executive directors in their board, they make a more earning forecast and give more accurate, useful information to the financial specialists (Ajinkya, Bhojraj, & Sengupta, 2005).Therefore, we foresee that board independence constrains the firm to involve in earning management.

CEO duality implies significant power for the CEO/Chairperson, by the way of allowing that person to set the board meeting agendas which in shape his pursuit and thereby keep away from extreme tracking (Roodposthi & Chashmi, 2011). Few studies proposed that CEO duality can enhance the board's observing and reduce the possibility of earning control (Kuoa, Ningb, & Song, 2014). Consequently, we assume that CEO duality is likely too much less powerful in monitoring, which reduces the likelihood of constraining the earning control.

Ho : There is no relationship between board size and real earning management.
Ho : Board independence has no relationship with real earning management.
Ho : CEO duality has no relationship with real earning management.

Audit committee independence

The audit committee considered an important component to reveal the financial report.Trained and financial professionalist auditors can apprehend accounting earning (Carcello, Hollingsworth, Klein, & Neal, 2006) whilst auditors and regulators are unable to hit upon the real earning due to excessive concealment and occasional risk characteristics (Zang, 2011; Graham, Harvey, & Rajgopal, 2005). So we don't predict the direction of audit committee independence and earning management.

Ho: Audit committee has no relationship with the real earning management of firms.

Ownership structure

Managers have the power and incentive to apply the firm assets in their own favor and thus expropriate shareholders' wealth. Legally, Owners placed a stress on management then they're bound to make use of the resources on the way to maximizes the shareholder's wealth. We predict the negative relationship between managerial ownership and real earning management.

Controlling shareholders have the power to boom their personal wealth by inflating stock price and crash the earning decreasing the company's transparency. Exceptionally focus owners can manipulate earning by the means of putting pressure on management and disguising the expropriation of minority shareholders. The company can switch from accrual to real earning or combine the two types and influence firm value and earning expectations (Kuoa, Ningb, & Song, 2014). Thus we hypothesis the negative relation between the concentration of ownership and real earning management.

If a firm faces the loss, then institutional investors pressure the management to keep away from loss via engaging in massive scale promoting, because they want short-term income (myopic investment behavior).On the other hand, the institutional investors don't emphasis on short-term earning they need the long-term benefit, so they don't force to engage in earning management.This will act as a disincentive for the managers to involve in real manipulations which decrease long-term firm value (Roychowdhury, 2006). We hypothesize that institutional investors should constrain real activities of manipulations.

H_o: Managerial investors have no relationship with the real earning management of firms.
H_o: Concentration of ownership has no relationship with real earning management.
H_o: Institutional investors have no relationship with real earning management.

Measures of Control variables

To govern the differences in earning management incentives, we encompass the control variables which totally based on previous studies. First, we include the natural log of total assets for the proxy of firm size (Deesomsak, Paudyal & Pescetto 2004; Roodposthi & Chashmi 2011; Fan, Titman, & Twite, 2012). In larger firms, investors put capital stress then they engage in earning manipulation but, large firms are scrutinized by the way of funding banks and analyst network (Richardson, Tuna, & Wu, 2002). The variable leverage (Lev) is used to seize the impact of debt, measure through overall debt to total assets (Sweeney, 1994). A better ratio indicates a higher pressure of debt covenant which limits the manager's opportunistic behavior to engage in earning management. This argument might are expecting terrible courting of leverage and real earning management.

Liquidity measured through current ratio (Roodposthi & Chashmi, 2011).Firms which have extra liquid assets use a long-term source of fund to finance their current operations. So liquidity is a

critical element to decide the firm overall performance. Firm age is used to seize the effect of young/ older firms. Young firms display exceptional characteristics than older firms. Older firms show good performance because of their reputation in the market and that they compete effectively to grip their position (Ericson & Pakes, 1995) they don't involve earning manipulations. In the end, market to book value is used to measure the growth possibilities of the firm, measure through the ratio of market value of equity to book value of equity. (Roychowdhury, 2006).

Regression model

The following regression model examines the relationship between real earnings management (REM) and corporate governance (CG) variables.

$$ABCFO_{it} = \alpha_0 + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 CEO_{it} + \beta_4 AUD_{it} + \beta_5 MAGOWN_{it} +$$

$$\beta_6 CONOWN_{it} + \beta_7 INSOWN_{it} + \beta_8 FSIZE_{it} + \beta_9 LEV_{it}\ \beta_{10} MB_{it} +$$

$$\beta_{11} FA_{it} + \beta_{12} LIQ_{it} + \mu_{it} \qquad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

$ABCFO_{it}$ is abnormal cash flow from operations of firm i at time period t (real earning management), α_O is Intercept, β_O is firm-specific parameters, μ_t is error term, *BS* are the numbers of board members, *BI* is board independence, measured as numbers of independent non-executive members in board. CEO_{it} represents dummy variable if CEO is also a chairperson of the firm then 1 otherwise 0 to show the CEO Duality, AUD_{it} represents audit committee independence which is measure through numbers of non-executive directors in the audit committee. $MAGOWN_{it}$ is managerial ownership measure through numbers of outstanding shares held by the management. $CONOWN_{it}$ is concentration of ownership measure as a natural log of number of firms shareholders. $INSOWN_{it}$ is institutional ownership which is measure through numbers of outstanding shares held by the institutions. Size of firm $FSIZE_{it}$ is measure through natural log of total assets. LEV_{it} is leverage, measure through total debt to total assets. Market to book value is donated by MB_{it} measure by market value of equity to book value of equity. LIQ_{it} is liquidity measure through total assets to total liabilities. Firm age is donated by FA_{it} shows numbers of years since IPO.

Empirical Result and Discussion

Table I reports the descriptive statistics of explanatory variables and dependent variables. The normal extent of board size (BS) is 8.30, which is closed to the base necessary for the top managerial staff under Clause II, Section 174 of the Companies Ordinance 1984. Round 16% of CEO was additionally the directors of the firm while 84% have isolated the chunk of CEO and executive. The centralization of ownership is 3.30. A low level of convergence of ownership (diffused possession) demonstrates that firm has low organization control. By and large, the institutional shareholders claim

43.66% of a firm's share. This rate is higher than 38%, 41.9% and 42.8% (Kuoa, Ningb, & Song 2014, Ding, Zhang & Zhang 2007 & Gul, Kim, & Qiu 2010). It reflects the expansion in share held by the controlling shareholders. This affirms ownership structure is extremely determined when contrasted with advanced (western) markets.

Table 1
Descriptive statistics

Variables	Maximum	Minimum	Mean	Medium	Std deviation
Ab. CFO	0.884	-1.169	-9.04E-18	-0.015	0.167
BS	16	7	8.30	8.00	1.73
BI	14	0	5.33	5.00	2.39
CEO	1	0	0.16	0.00	0.36
AUD	6.00	1.00	2.91	3.00	0.97
MAGOWN	98.40	0.00	22.05	4.47	27.57
CONOWN	4.58	2.21	3.30	3.21	0.47
INSOWN	99.16	0.21	43.66	37.63	31.22
FSIZE	8.6 9	4.71	6.77	6.75	0.74
LEV	12.16	0.015	0.66	0.55	0.87
MB	1234.286	-71.64	12.99	5.71	70.69
FA	113.00	12.00	41.44	35.5	19.05
LIQ	65.82	0.08	2.33	1.81	3.77
Observation	350	350	350	350	350

Table 2
Correlation Matrix

	AB.CFO	BS	BI	CEO	AUD	MAG OWN	CON OWN	INSO WN	FSIZE	LEV	MB	FA	LIQ
AB.CFO	1 00												
BS	0 0 4	1 00											
BI	0 0 4	0 5	1 00										
CEO	0 11	0 14	0 24	1 00									
AUD	0 11	0 44	0 55	0 2	1 00								
MAGOWN	0 0 9	0 35	0 2	0 14	0 23	1 00							
CONNOWN	0 03	0 43	0 40	0 04	0 40	0 31	1 00						
INSOWN	0 003	0 2	0 20	0 20	0 15	0 1	0 2	1 00					
FSIZE	0 199	0 4	0 29	0 0	0 39	0 19	0 0	0 22	1 00				
LEV	0 10	0 11	0 0	0 23	0 0	0 0	0 03	0 0	0 24	1 00			
MB	0 05	0 04	0 02	0 0	0 01	0 01	0 03	0 05	0 11	0 0	1 00		
FA	0 04	0 1	0 14	0 00	0 0	0 13	0 09	0 1	0 1	0 04	0 00	1 00	
LIQ	0 14	0 09	0 03	0 0	0 0	0 00	0 05	0 04	0 03	0 1	0	0 04	1 00

Table 2 presents correlation coefficients of all factors of the time of 2009-2014. The negative relationship between abnormal cash flow from operations and CEO duality speaks to that individuals, don't assume an imperative part in moderating real earning management. The concentration of ownership is absolutely connected with abnormal cash flow from operations. Profoundly focused possession makes it feasible for the firm to take part in controlling the earning through real technique. They have the motive force to expand their own particular possessions by blowing up stock rate. Board independence is positively related to the board and firm size, which demonstrates that bigger firms require more individuals on their board and typically dole out the extra seats to outside individuals.

Table 3
Regression Analysis

Variable	Co-efficient	p-value
C	-0.213470	0.0197**
BS	-0.000600	0.9371
BI	0.002926	0.5847
CEO	-0.040897	0.1144
AUD	0.001225	0.9149
MAGOWN	-0.000833	0.0463**
CONOW	-0.058354	0.0234**
INSOWN	-0.000688	0.0621***
FSIZE	0.059704	0.0007*
LEV	0.002110	0.8543
MB	-0.000581	0.0357**
FA	0.000254	0.5915
LIQ	0.016499	0.0016***
R square	0.112343	
F-statistics	3.554271	
Pro (F- statistics)	0.0010	

The equation is estimated as follow

$$ABCFO_{it} = \alpha_o + \beta_2 BS_{it} + \beta_3 BI_{it} + \beta_4 CEO_{it} + \beta_5 AUD_{it} + \beta_6 MAGOWN_{it}$$
$$+ \beta_7 CONOWN_{it} + \beta_8 INSOWN_{it} + \beta_9 FSIZE_{it} + \beta_{10} LEV_{it} + \beta_{11} MB_{it}$$
$$+ \beta_{12} FA_{it} + \beta_{13} LIQ_{it} + \mu_{it} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(3)}$$

Where $ABCFO_{it}$ is abnormal cash flow from operation, our dependent variable of firm *I the* at time period *t.* while α_o is the intercept of the equation. BS_{it} , BI_{it} , CEO_{it} and AUD_{it} are board size, board independence, CEO duality, and audit committee independence respectively, measure the board structure of the firm. $MAGOWN_{it}$, $CONOWN_{it}$ and $INSOWN_{it}$ are managerial ownership, concentration of ownership and institutional ownership respectively, are the variables of ownership structure of the firm. $FSIZE_{it}$ the firm size used to show the effect of size of the firm. LEV_{it} represents the leverage of firm to found out the effect of earning. MB_{it} is market to book ratio to control the firm growth rate. FA_{it} firm age to control the effect of young / older firm. LIQ_{it} is the control variable of liquidity. μ_{it} is error term.
      * Significant at 1 %. ** Significant at 5 . *** Significant at 10 %.

The results of regression analysis are demonstrated in Table III, abnormal cash flow from operations is regressed towards several explanatory variables and control variables. The explanatory power of the model ranges from 11.23% as donated with the aid of R square. The low value of r square shows that a small part of the variation in abnormal cash flow from operations is explained with the aid of variability of independent variables.

The consequence of our model depicts that managerial ownership negatively affects abnormal cash flow from operations, indicates that manager's interest is possible to be aligned with controlling shareholder in preference to minority shareholders. As controlling shareholders have a strong pressure on firms, so they're much less concerned about earning manipulations. The essential finding is that there is a negative relationship between the concentration of ownership and abnormal cash flow from operations. In Pakistan, there is less grouping of financial specialists in the firm; they don't permit the organizations to take part in real earning management. Incredibly concentrated ownership makes it feasible for the firm to participate in manipulations. They have the incentive to build their own wealth by blowing up the stock cost.

We find that institutional possession has statistically critical and negative identified with abnormal cash flow from operations. The reason is that because of the financial conditions if the supervisors find a way to maintain a strategic distance from the misfortunes that happen in the firm in form of real activities then the sophisticated investors confines these exercises. That why institutions assume a vital part in constraining the controls of real activities.

The coefficient of other variables board measure (BS), board independence (BI), CEO duality (CEO) and audit committee independence (AUD) are all irrelevant. This may identify with the supervisor's control over the choice of board individuals and choices, thus prompting to powerful checking or absence of reasonable exposure by the firm (Visvanathan, 2008).

Among the control factors, the market to book value has a statistically significant impact on abnormal cash flow from operations. It might be because of the conceivable reason that market to book value is used to meet or beat yearly expert forecast. The firms which have more prominent development opportunities more comprise in real earning management (Roychowdhury, 2006). The larger firm is believed to embrace real activities to show high gaining as a contrast with smaller firms.

Conclusion

This paper experimentally examines the impact of corporate governance on real earning management for non-financial firms listed on Pakistan stock exchange for the time period of 2009 to 2014. This study reveals that general board attributes and audit committee independence has an insignificant impact in restricting the real earning management, demonstrates that most firms concentrate on the accrual method. Media, researchers, and investigators have less concentration on

the techniques of real earning methods. Ownership structure (managerial ownership, the concentration of ownership and institutional ownership) has a negative relationship with real earning management, which indicates that manager's interest is possible to be aligned with controlling shareholder in preference to minority shareholders. When the firm has controlling shareholders then it becomes difficult to involve in real activities. Institutional ownership plays a significant role in controlling real earning management, illustrates that institutional investors adopt a vital share in keeping the managers not to take part in real methods by adjusting the interest of management with controlling shareholders.

This analysis can be stretched out for future research in a few ways. It utilizes just a single intermediary for distinguishing real earning management that is abnormal cash flow from operations, future research could be continued by taking the other two proxies that are abnormal production and abnormal discretionary expenses, furthermore, the aggregate real earning management.Firm size can be increment by taking more budgetary years so that the variables which demonstrate irrelevant in the study gets to be significant.

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