
EDITORIAL BOARD

Chief Editor

Prof. Dr. Syed Irfan Hyder

Editor

Mr. Masood Hassan

Managing Editor

Ms. Sabina Mohsin

Literary Editor

Mr. Muhammad Asif Khan

Editorial Assistants

Mr. Muhammad Naveed Khan

Mr. Majid Hussain

ADVISORY BOARD

Prof. Izlin Ismail, Faculty of Business and Accountancy, University of Malaya, Kuala Lumpur, Malaysia.

Dr. Teoman Duman, International Burch University, Bosnia and Herzegovina.

Prof. Angelo Santagostino, University of Brescia, Italy.

Mr. Thomsas Winter, University of Rostock, Rostock, Germany.

Dr. Geoff Kay, City University, London, United Kingdom.

Dr. D.M.Semasinghe, University of Kelaniya, Sri Lanka.

Dr. Ziasma, University of Karachi, Pakistan.

Prof. Dr. Fasihul Alam, Department of Management Studies, University of Chittagong, Bangladesh.

Prof. Subas K.C., Dean, Kathmandu University, School of Management, Nepal.

Mr. Peter N. Stearns, Provost and Executive Vice President, George Mason University, Virginia, United States of America.

Ms. Deng Xinghua, Director, University of Science and Technology, China.

Prof. Dr. Dietrich Steude, Fachhochschule Erfurt University of Applied Sciences, Berlin, Germany.

Mr. Jurgen Gau, Dipl.-Ing., Dipl.-Wirtsch.-Ing.,
Donarweg, Munich, Germany.

Mr. Horst Stenzel, Concepts Consulting
Production, Stenzelfilm, Selma-Lagerlof-STR.,
Munich, Germany.

Prof. Asim Jamal Siddiqui, University of
Karachi, Pakistan.

Prof. Dr. Arshad Syed Karim, Sir Syed Univer-
sity of Engineering & Technology, Karachi,
Pakistan.

Prof. Anoma Abhayaratne, Department of
Economics and Statistics, University of Perad-
eniya, Sri Lanka.

Dr. Domingos Santos, Sub-Director, Institute
of Politecnico de Castelo Branco, Portugal.

Dr. Javier Poncela Gonzalez, Department
ETSI Telecommunication, University of
Malaga, Spain.

Ms. Alessia Lefebure, Director Alliance
Program, Columbia University, New York,
United States of America.

Prof. Pranas Zukauskas, Faculty of Economics and
Management, Vytautas Magnus University, Lithuania.

Mr. Hartmut Wellerdt, Marketing Consultant,
Bremin University, Germany.

Dr. Silvia Scaramuzzi, Head of International
Relations Department of Economics and Manage-
ment, University of Florence, Italy.

Dr. Niaz Wassan, Kent Business School, United
Kingdom.

Dr. Zaheer Khan, Kent Business School, United
Kingdom.

Dr. Jaime Yong, Edith Cowan University, Australia.

Dr. Anna Zamojska, Edith Cowan University,
Australia.

Dr. Helen Cripps, Edith Cowan University, Australia.

Dr. Saleem Chaudhry, San Jose State University,
United States of America.

Pakistan Business Review (PBR)

Introduction - About Us:

Pakistan Business Review (PBR) is the premier journal of Institute of Business Management (IoBM) which is in continuous publication since April 1999. It is Pakistan's first refereed academic research quarterly focused on areas related to business and industry. PBR is an HEC approved X category journal. It is abstracted and indexed by the American Economic Association's EconLit, the Journal of Economic Literature, USA, and EBSCO, New York. It is supervised by an international advisory board of academics from national and international organizations such as the London School of Economics, the University of Sussex, the University of San Diego and Indiana University, USA, Bochun University, Germany, the United Nations Industrial Development Organization, the International Association for Clean Technology, Austria. International advisory board members are also drawn from China, Spain, Columbia, Srilanka, Bangladesh, Lithuania, and Nepal. The Institute of Cost and Management Accountants of Pakistan, the Institute of Chartered Accountants of Pakistan, the Pakistan Institute of Development Economics, the Applied Economic Research Centre, the University of Karachi and the Aga Khan University faculty are also represented on the board.

Scope & Mission:

PBR encourages research in areas related to business and industry through quality articles. It is a double blind peer-reviewed journal edited by IoBM, Karachi, Pakistan. The journal is an academic resource for research articles and research based case studies in areas such as strategy, marketing, management, human resource management, finance, accounting, business ethics, entrepreneurship, economics, business psychology, social marketing, business analytics and other related functional areas. It provides a platform to academics and researchers for sharing their original and unpublished work globally.

Indexing & Abstracting Agencies:

- HEC recognized journal in "X" category
- EconLit
- EBSCOhost
- Crossref
- CiteFactor
- Google Scholar
- Miar
- Eurasian Scientific Journal Index
- Scientific Indexing Services (SIS)
- EZB
- ZDB
- Journal Factor (JF)
- EuroPub
- BASE (Bielefeld Academic Search Engine)
- Central and East European Index (CEE Index)
- International Institute of Organized Research (I2OR)
- ProQuest (Under Evaluation)

Review & Publication Policy:

All research articles published in PBR go through an initial editor screening followed by a rigorous double-blind peer review by three referees. Articles of PBR are available online through the Journal Management System. The process of submission, editing, refereeing, review and correspondence with authors is also online through the Journal Management System.

Copyright:

Copyrights for articles published in PBR are retained by the authors, with first publication rights granted to the journal.

Correspondence:

Editor PBR
Institute Of Business Management(IoBM)
Korangi Creek, Karachi-75190, Pakistan
UAN: (+92-21) 111-002-004, Ext. : 731
Email: editorpbr@iobm.edu.pk
Website: <https://pbr.iobm.edu.pk/>

CONTENTS

Research	Page No.
Competition and Risk Taking Behavior of Banks: New Evidence from Market Power and Capital Requirements <i>Abdur Rahman Aleemi, Dr. Imam Uddin and Dr. Muhammad Kashif</i>	540
Role of Communication and Participation in Promoting Employees Openness to Change: Mediating Role of Trust in Supervisor <i>Ayesha Nazish Butt, Dr. Sumaira Rehman and and Khadija Mushtaq</i>	560
Influence of Servant Leadership on Employees' Behavioral Outcomes In Cultures With High Power Distance Orientation <i>Muhammad Azeem Qureshi, Dr. Kazi Afaq Ahmed and Dr. Syed Irfan Hyder</i>	576
Effect of QMS on Innovation and Financial Performance – A Developing Country Perspective <i>Faryal Jalil, Dr. M. Shafiq and Dr. Wasim ul Rehman</i>	595
Social Capital, Happiness and Economic Growth: Asian Evidence <i>Sadaf Shahab, Muhammad Tariq Mahmood and Muhammad Hafeez</i>	612
Moderation Mediation Framework for Enterprise Risk Management and Performance of Islamic Banks of Pakistan <i>Waqas Ali, Irfan Haider Shakri and Muhammad Masood Khan</i>	624
Determinants of Household's preferences for safe drinking water in Pakistan <i>Naeem Akram and Abdul Khaliq</i>	640
Relationship of Working Environment, Employee Empowerment, Training & Development and Organizational Commitment <i>Nawaz Ahmed, Muhammad Ashraf and Riaz Ahmed Mangi</i>	651

CONTENTS

Research	Page No.
Relationship between Current Assets Management and Firm's Market Value: Evidence from Pakistan <i>Mehwish Riaz, Saba Haider and Mohsen Shafiq</i>	664
Comparing Forecasting Performance of Linear and Non-Linear Time Series Models <i>Tayyab Raza Fraz, Javed Iqbal and Mudassir Uddin</i>	680

COMPETITION AND RISK TAKING BEHAVIOR OF BANKS: NEW EVIDENCE FROM MARKET POWER AND CAPITAL REQUIREMENTS

Abdur Rahman Aleemi¹, Dr. Imam Uddin² and Dr. Muhammad Kashif³

Abstract

The relationship between competition and banking stability has resulted in two opposing paradigms; competition-fragility view suggests that increased competition erodes market power and encourages banks to take excessive risks. In contrast, the competition-stability view suggests that, low competition results in more market power which may encourage the banks to charge higher loan rates adversely affecting borrowers by risk shifting mechanisms. Given these opposing predictions in the literature, this study aims to test the two views, considering the effects of market power and capital requirements on the riskiness of Pakistani banks. Utilizing annual data for 30 banks over the period of 2004 to 2017, in a dynamic two step system GMM. We construct Lerner index as a direct measure of market power for the banking industry. Our findings support the competition stability paradigm in the case of Pakistan. We also find that the theoretical link between capitalization ratio and market power is sufficiently strong and should be encouraged as greater capital buffers reduce risk exposure.

Keywords: Banking Stability, Capital Adequacy, Competition, Lerner Index, Market Power.

JEL Classification: G210, G320

Introduction

Given the context of banks' safety and soundness, the relationship between competition and stability has long been debated. Several studies have shed light on the said nexus, however the evidence is largely contentious and inconclusive. There are two predominant and contrasting hypotheses which view the relationship between competition and stability in different ways (Berger et al., 2009; Cihák et al., 2006). One is the competition-stability and the other is competition-fragility view.

¹ Faculty, Institute of Business Management (IoBM), Karachi, Pakistan. Email: abdur.rahman@iobm.edu.pk

² Associate Professor, Institute of Business Management (IoBM), Karachi, Pakistan. Email: imamuddin@iobm.edu.pk

³ Associate Professor and Head, Department of Management Sciences, SZABIST, Karachi, Pakistan.
Email: muhammad.kashif@szabist.edu.pk

The competition-stability view mainly draws from Boyd and De Nicolo (2005), who suggested a tradeoff between risk and incentive mechanisms of banks. Less competitive markets, allow banks to exercise *market power* enabling them to charge higher rates and earn more as their markets become concentrated, which in turn may become difficult for the borrowers to pay off. Thus making it riskier. To supplement higher rates, borrowers tend to undertake risky projects, resulting in increased defaults. More borrowers' defaults affect banks' solvency through risk shifting mechanisms (Stiglitz & Weiss, 1981) and adds on to the fragility of the entire financial system.

In contrast, the competition-fragility view, advocates that due to higher level of competition banks' margins and market power are eaten away, which in turn induce the banks to take on risky projects thus adding into fragility (Keeley, 1990; Marcus, 1984; Matutes & Vives, 2000). Following the seminal work of Keeley (1990), several studies indicate that higher competition results in enhanced moral hazard in banking system and thus it is suggested that less competitive and relatively more concentrated banking conditions are expected to be relatively stable (Martinez-Miera & Repullo, 2010; Jiménez et al., 2013).

In short, the literature largely provides mixed evidence that whether competition and stability are positively or negatively linked. However, it's worth noting that, the said relationship is largely investigated for advanced economies, and very little attention has been paid towards developing and emerging economies. Kasman and Kasman (2015) argues that financial liberalization, deregulation and large scale restructuring across markets have changed the competitive landscape in banking, both in developed and developing economies; forcing the banks to operate on low profit margins and eroding market power. Similarly, Sarkar and Sensarma (2016) argues that since, emerging economies are rapidly undergoing drastic structural changes, it has become extremely challenging for the policy makers to maintain stability. Hence it is imperative to understand the wide ramifications of competition stability and or fragility nexus as any such aggravation can pose systemic risk.

To fill that gap, our study contributes in several ways. First, we investigate the competitive conditions for banks in Pakistan. *Second*, we apply a structural neo-organizational approach for the first time in a country specific settings by estimating Lerner Index as a direct measure of market power by following Berger et al. (2009) and Forssbaeck and Shehzad (2015).

The construction of the Lerner index for Pakistani banks in itself is a contribution as to the best of our knowledge, to date, no such attempt has been made except that of World Bank (2011). The only closely relevant study is that of Mirza et al. (2016) who measures the degree of competition for Pakistani banking sector with Hall-Roeger indicator, Panzer-Rosse's H-statistics, the Boone's indicator and Bresnahan-Lau procedure over 2004 to 2012. Similarly, Khan and Riazuddin (2009) assessed the degree of competition for the banking industry of Pakistan using only the Panzer-Rosse H-Statistic. Similarly, another effort by Afzal and Mirza (2010) measures market power in terms of banks' market

share. However, they still fall short to construct Lerner index as a direct measure of market power. In short this is a major gap and is intended to be traversed in the current study. *Third*, we use two different sets stability measures to have a comprehensive understanding of competition stability and or fragility nexus for Pakistani banks. *Fourth*, we introduce the capital adequacy as a policy framework in the competition-risk framework for Pakistani banks.

Literature Review

The extant literature on competition stability and or competition fragility is comprised of both theoretical and empirical studies and by large produces inconclusive and contrasting evidence.

Competition Fragility Hypothesis: A broader interest in the competition-stability and or fragility nexus has been introduced by the seminal work of (Keeley, 1990), who was the first to address the issue both theoretically and empirically under the auspices of the *charter value hypothesis*, which posits that greater competition erodes market power by reducing charter value which in turn may induce banks to take excessive risks, exacerbating moral hazard and adverse selection and resultantly increases the probability of banks' failures. However, if banks have certain degree of market power and hence positive charter value, they may not have higher incentives for excessive risks. Hence bankers will be more prudent in in this way (Beck, 2008; Kasman & Kasman, 2015). Similarly, Edwards and Mishkin (1995) links excessive risk taking by US banks during 1980s to the erosion of their profit margins due to high competition which suppressed their cost advantage in acquiring deposits with undermined position in loan markets (Carletti & Hartmann, 2002). Moreover, Boot and Greenbaum (1995) argues that highly competitive banking markets restricts banks' informational rents resulting from their relationships with borrowers. This bank-depositors' relationship framework has been extensively explored by (Besanko & Thakor, 1995) and show that increased competition leads to the selection of riskier portfolios. The same idea has also been echoed by (Allen & Gale, 2000, 2004), who supports the charter value hypothesis by adopting an agent based model and concludes that less concentrated banking systems are more likely vulnerable to financial crises.

Similarly, Beck (2008) sheds light on the positive link between market power and stability that in highly competitive markets, banks face greater pressure to maintain their profits as compared to systems where entry is restricted with relatively low competition resulting in better profit opportunities. Thus making risk taking relatively unattractive since banks have fewer incentives to gain, therefore affecting financial stability positively. In this way, to preserve financial system's stability, higher competition has to be restrained. Arguably, the theoretical literature in this realm has been supported by other numerous theoretical studies including (Caminal & Matutes, 2002; Carletti et al., 2007) among others.

Competition Stability Hypothesis: Despite the fact that the charter value hypothesis has got significant support, yet existing theoretical studies by and large produce mixed results. Boyd and De

Nicolo (2005) were among the first to question the competition fragility hypothesis and proposed the competition stability hypothesis. They argue in favor of a positive relationship between competition and stability and take that low competition in banking provides opportunities for banks to exercise market power and to charge higher loan rates. These higher loan rates may increase default probability by inducing borrowers to assume higher risks due to moral hazard and adverse selection issues, leading to a more fragile banking system.

However, Boyd et al. (2009) does not confirm their previous findings by assuming that banks also hold a risk free asset. Moreover, they further suggest that borrowers' default is highly correlated with bank failure. Similarly, (Martinez-Miera & Repullo, 2010) argue that since competition negatively affects interest income thus higher correlation between borrowers' default and bank failure may not necessarily be true. More recently, Arping (2014) presents a puzzling condition by setting a model where banks are shown as relatively more reluctant towards excessive risk in competitive conditions. They show that during greater competition, banks face high risk of failures as their profit margins decline. In such conditions banks tend to reduce their risk taking yet at the same time their risk profile worsens as a result of the direct destabilizing effects of reduced margins. This situation further erodes their capital buffers which leads to contrary implications that the competition effects on risk taking and on risk of failure may move in opposite directions. They conclude that heightened market power spur more aggressive risk taking by increasing the banks' risk appetite. Making the effect of market power, thus more ambiguous and puzzling.

In the context of developing economies, (Ariss, 2010) models to examine how different degrees of market power affect banks' efficiency and stability and reports that greater degree of market power not only enhances banks' stability but also enhances profit efficiency. Similarly, (Yaldiz & Bazzana, 2010) provides support in favor of competition stability for the Turkish banking system by investigating the role of market power on loan risk and overall bank risk. However, another recent evidence for Turkish economy comes from (Kasman & Kasman, 2015) who took into account the effects of concentration and competition on financial stability using the Boone indicator and an efficiency adjusted Lerner index for market power while proxying Z-index and NPL as stability measures. They also allow for non linearities and produce evidence in favor of competition fragility.

Though emerging economies have had very little attention in the literature, however, still a number of contributions are documented. For instance, (Soedarmono et al., 2013) accounts for the effects of Asian crisis for emerging economies in Asia and finds association between holding higher levels of capital and greater degree of market power and higher insolvency ratios. They further suggest that during the crisis periods, market power had stabilizing effects on Asian banks. A similar context was also reported by (Soedarmono et al., 2011) taking into consideration the question of moral hazard for Asian banks. However, they find that greater market power is associated with greater instability albeit the fact that banks are relatively better capitalized in less competitive conditions yet their default risk is higher. More recently, Apergis (2015) takes the effects of the recent global finan-

cial crisis for a panel of emerging economies by utilizing the (Panzar & Rosse, 1987) H-Statistic, and provide support for monopolistic competition. Moreover, Zhang et al., (2013) examines the relationship between concentration, stability and performance for BRICS countries.

For the Indian banks, recently Sarkar and Sensarma (2016) tests the validity of the charter value paradigm and the Boyd & De-Nicolo framework and found that the relationship is relatively more subtle than straightforward. On the one hand they report concentration positively affecting, default, and asset and market risk but on the other, concentration is also positively affecting capital buffers, suggesting that increased competition may deteriorate capital buffers as safety cushion for Indian banks.

From the perspective of Pakistan, the only closely relevant study is that of (Mirza et al., 2016) who investigated the competitive condition for the banking industry of Pakistan with a variety of structural and non-structural measures like the (Panzar & Rosse), (Bresnan & Lau), (Hall & Roeger) and the Boone's indicator. They suggest that Pakistani banking industry is quiet competitive. However, they only account for the prevailing competitive conditions in Pakistani banking industry and do not take into account the risk taking behavior and or stability/fragility notion in the case of Pakistan.

Though in the light of the most of the literature, it is still hard to draw any strong and conclusive deduction. In summary, both the theoretical and empirical literature appears to be divided into two distinct paradigms. One can easily narrow down these dimensions to one that covers the negative relationship under the auspices of charter value paradigm with high competition and low market power. Whereas the other, that comes with the notion that less competition and more market power may undermine stability under the risk shifting paradigm. A possible reason for such extensive heterogeneity in the literature is that the market power-stability-fragility nexus is extremely complex and highly case dependent. Which warrants further investigations to bring into light the opaquer issues in conjunction to market structure and financial stability. There is apparently no clear consensus and neither any compelling theoretical nor any robust empirical evidence to conclude that whether competition leads to fragility or promotes stability.

Tools and Methods

Dependent Variables: Risk Measures

Liquidity Risk: As per the *'Theory of Financial Intermediation*, banks are considered as financial intermediaries, pooling deposits and lending these to create loans (Werner, 2016). Under this theory, banks are also responsible for the creation of liquidity. In the words of (Dewatripont et al., 2010), liquidity is created (by banks) by borrowing short and lending long. This mismatch of maturity timings sometimes creates a potential problem of liquidity risk, which arises when a firm is unable to

meet its liabilities upon becoming due. Furthermore with the implementation of Basel III accord, liquidity risk in particular has received much interest, due to its importance during periods of crises alluded to the fact that banking activity is largely characterized by this key risk (Tanda, 2015). Given this, we adopt the ratio of liquid assets to total assets, where higher ratio indicates lower liquidity risk and vice versa (Bourkhis & Nabi, 2011; Demirgüç-Kunt & Huizinga, 2004; Hussein, 2010; Sarkar & Sensarma, 2016).

$$LiquidityRisk = \frac{LiquidAssets}{Totalassets} \dots\dots\dots(1)$$

Default Risk: Also known as solvency risk, is widely captured in the banking literature by Z-Scores. Unlike liquidity risk, Z-Score indicates the overall bank risk (Abedifar et al., 2013; Bakkar et al., 2016; Cabrera, 2016; Čihák & Hesse, 2010; Kasman & Kasman, 2015). Z-scores are calculated taking accounting based asset returns and equity's volatility as given below;

$$Z_{it} = \frac{ROA_{it} + \left(\frac{E}{TA}\right)_{it}}{\sigma ROA_{it}} \dots\dots\dots(2)$$

Where ROA is the accounting measure of return on assets and E/TA is the equity ratio for bank i at time t . Whereas $\sigma(ROA)$ is the standard deviation of ROA . The scores combine profitability, leverage and volatility in returns given by its ROA , E/TA and $\sigma(ROA)$ respectively and indicates the distance in terms of the number of standard deviation of return on assets a bank is far from solvency and the likelihood of failure (Boyd & Runkle, 1993; De-Nicolò, & Jalal, 2006). A higher Z-score suggests greater stability and lower probability of insolvency and vice versa.

Explanatory Variables

Measuring Market Power: Market power is a reflection of a firm's ability to set prices above its marginal cost (Williams, 2012). A common practice to measure market power in the banking industry is the Lerner index which is been extensively used in the banking literature and indicates the relative price difference between marginal cost scaled by the price of a firm's output and is therefore inversely related to competition (Forssbaeck & Shehzad, 2015). The Lerner index has got several advantages over its peers such as the Panzer and Rosse H-Statistic and the Boone indicator that it measures market power at the bank year level. Furthermore, (Iveta, 2012; Rojas, 2011) indicates that Lerner index illustrates the behavioral departure point for imperfectly competitive markets from the benchmark of perfect competition. The index ranges from 0 to 1, with 0 means perfect competition and 1 indicating monopoly representing the conjectural variations of elasticity of the total banking output in terms of the output by Bank i (Soedarmono & Tarazi, 2014). It is expressed as inverse of the

price elasticity such as;

$$Lener = \frac{(P_{it} - MC_{it})}{P_{it}} \dots\dots\dots(3)$$

Where P_{it} indicates output prices, proxied by the ratio of total earning assets to total assets and MC_{it} are marginal costs for bank i at time t respectively. The marginal costs is derived from a translog cost function using a system of equations with respect to one output (the ratio of earning assets over total assets) and three inputs (prices for capital, funding and labor) by following (Degl’Innocenti et al., 2017; Demirgüç-Kunt & Martinez Pería, 2010; Forssbaeck & Shehzad, 2015; Williams, 2012) as;

$$\ln TC = \alpha + \sum_{k=i}^1 \beta_k \ln(Y_{kit}) + \sum_{h=1}^3 \beta_h \ln(W_{hit}) + \sum_{h=1}^3 \sum_{m=1}^3 \frac{1}{2} \gamma_{hm} \ln(W_{hit}) \ln(W_{mit}) + \sum_{k=i}^1 \frac{1}{2} \delta_k \dots\dots\dots(4)$$

The above specification indicates total cost (TC) as a function one output (Y_k) with three inputs of capital, labor and funding presented by (W_h), a time trend (T) representing technological and technical change. A set of bank level specific control variables are presented by the vector (X_p) which in our case is equity. We follow the stochastic frontier approach and estimate the above system as constrained linear regression with restrictions of linearity and homogeneity (Degl’Innocenti et al., 2017; Koetter, Kolari, & Spierdijk, 2012). Finally, to construct the Lerner index, the marginal costs are then derived by differentiating as given by;

$$MC_{Lit} = \frac{\partial TC_{it}}{\partial \ln Y_t} = \left[+ \sum \beta_{hL} \ln W_{hit} + \theta_L T \right] \frac{TC_{it}}{Y_t} \dots\dots\dots(5)$$

Capital Adequacy Ratio

Capital adequacy ratio is a measure of banks’ capital buffer against contingent losses (Afzal, 2015). Banks having higher capital buffer are considered less risky as higher capitalization provides with a safety cushion and makes the banks less vulnerable to negative shocks. We consider capital adequacy ratio as a measure of regulatory framework, as every bank is required to maintain a healthy CAR (minimum 11.3% as of December 2017 in the case of Pakistan) as per regulatory mandatory minimum capital requirements under the auspices of Basel Committee for Banking Supervision

(BCBS) and Basel accords. The association between risk taking and capitalization ratio is well documented in literature (for instance see (Haq et al., 2016;) and (Tanda, 2015) for a comprehensive review). Moreover, we consider banks' CAR for its potential effects on bank lending behavior and as a potential indicator of capital crunch issues (Soedarmono & Tarazi, 2014). Following the BCBS guidelines we estimate CAR as follows;

$$CAR_{it} = \frac{\ln(CapitalBase)_{it}}{\ln(RWA)_{it}} \dots\dots\dots(6)$$

Whereas the capital base indicates the sum of Tier-I and Tier-II capital while RWA indicates risk weighted assets.

Control Variables: To control for different bank specific characteristics, we include natural log of total assets to control for size and possible heterogeneity arising from economies of scale. Similarly, heterogeneity arising from profitability is controlled for by return on assets (ROA). Whereas a macroeconomic control variable in the form of real GDP growth rate is also included to control for business cycle variations. As we believe that risk related measures of banks are pro-cyclical, thus a macroeconomic control variable is necessary and important. 2.3

Empirical Research Design and Econometric Specifications

In order to test the relationship between market power, riskiness of Pakistani banks and capital requirements, we set up a general model to specify the relationship as follows;

$$Risk_{it} = \alpha_{it} + \beta_1 MP_{it} + \beta_2 CAR_{it} + \sum_{i=1}^k \beta_{3+i} (BankSpecificControl)_{kit} + \sum_{j=1}^m \beta_{4+m} (Macro - LevelControl)_{mit} + \epsilon_{it}, \dots\dots\dots(7)$$

Where, MP presents the measures for market power, i.e. the Lerner index, CAR indicates the capitalization ratio. Bank specific control include, bank size and ROA whereas macroeconomic control include business cycle proxied by real GDP growth rate as in (Kasman & Kasman, 2015). Finally, risk indicates distress indicators for liquidity and default risk. Whereas the ϵ_{it} is the stochastic disturbance term that is believed to be white noise and is expressed under the assumptions as;

$$\epsilon_t \text{ IID}(0, \sigma^2) \dots\dots\dots(8)$$

Equation (10) summarizes that ϵ_t should be independently and identically distributed

(Aleemi & Azam, 2015; 2017).

Estimation Methodology: We employ dynamic panel data methods to cater for several issues such as simultaneity, endogeneity and unobserved biases from bank level heterogeneity. Further, dynamic panel models are also appropriate to cope with the issues of reverse causality that may arise between dependent and explanatory variables. To cope with these and other such potential issues such as elimination of serial correlation, several studies adopt dynamic models such as Dynamic Ordinary Least Squares (DOLS), Instrumental Variables Regression and Two-Stage Least Squares (2SLS) methods with instrumental variables. However, (Hall, 2005) has shown that these techniques are not that much robust as they do not account for heteroscedasticity. (Baum et al., 2003) calls it an omnipresent issue in empirical research and suggests taking advantage of the GMM's orthogonality conditions to cater for heteroscedasticity of unknown form. Thus in this study we follow the procedures outlined by (Arellano & Bover, 1995) and (Blundell & Bond, 1998) and employ a two-step system Generalized Method of Moments (GMM) technique.

The System GMM is an extension of the standard GMM approach proposed by (Arellano & Bond, 1991). Furthermore, (Hall, 2005) argues that system GMM is more efficient than 2SLS as it accounts for heteroscedasticity and is free of the requirements for distributional assumptions about the error term, which in many cases could be a huge advantage. Moreover, the system GMM is shown by (Baltagi, 2008) to produce more precise and efficient estimates compared to the standard GMM and helps to reduce biases and precision issues by way of differencing variables.

The system GMM is first estimated in levels and then in differences by including lagged explanatory variables as instruments. The right hand side variables in a system GMM are considered as endogenous variables and are allowed to orthogonally adopt their first differenced lags as instruments. Following (Kasman & Kasman, 2015) we include a lagged explanatory variable for bank stability measures. As a relatively unstable bank is likely to exhibit distress in the following period which is an indication of the persistency in bank risk taking behavior.

Finally, to test the stability and goodness of fit of our estimated models, we apply the Hansen-J Test and AR (2) test to check for the over identifying restrictions and second order correlation respectively. When both the Hansen-J test and the AR(2) tests are insignificant at a given level of confidence interval, show the validity that the identifying restrictions are valid and that second order correlation among first-differenced errors do not exist respectively.

Sampling and Data

Our sample period comprises of the post reforms era and spans from 2004 to most recent 2017 whereby the regulatory, supervisory and disciplinary requirements of Basel II accord was adopted in Pakistan. Data is collected from the official annual financial statements for 30 scheduled banks

during the period.

Findings

Lerner Index

The mean annual Lerner index are reported in Table 1 and their evolution through the sampled period is depicted in Figure 1. A great advantage of Lerner over other measures of competition and market power is that it provides a direct measure of pricing power per year at bank level.

Table 1:
Lerner Index over the sampled period

Year	Lerner
2004	0.434
2005	0.531
2006	0.515
2007	0.549
2008	0.613
2009	0.657
2010	0.632
2011	0.617
2012	0.623
2013	0.596
2014	0.556
2015	0.492
2016	0.414
2017	0.381

Consistent with theory, the mean Lerner index indicate competitive conditions in Pakistani banking industry. Overall, the industry witnessed slight to moderate improvement in terms of market power (from 0.434 in 2004 to 0.381 in 2017). On average, the industry remained to be monopolistically competitive during the entire sampled period that could be alluded to the higher level of concentration and amalgamations and stringent monitoring of SBP. The intuition of this line of reasoning is consistent with that of (Beck et al., 2006; Beck, 2007). Moreover, increased consolidation can potentially lead to collusion among larger banks as corroborated by (Bos et al., 2013).

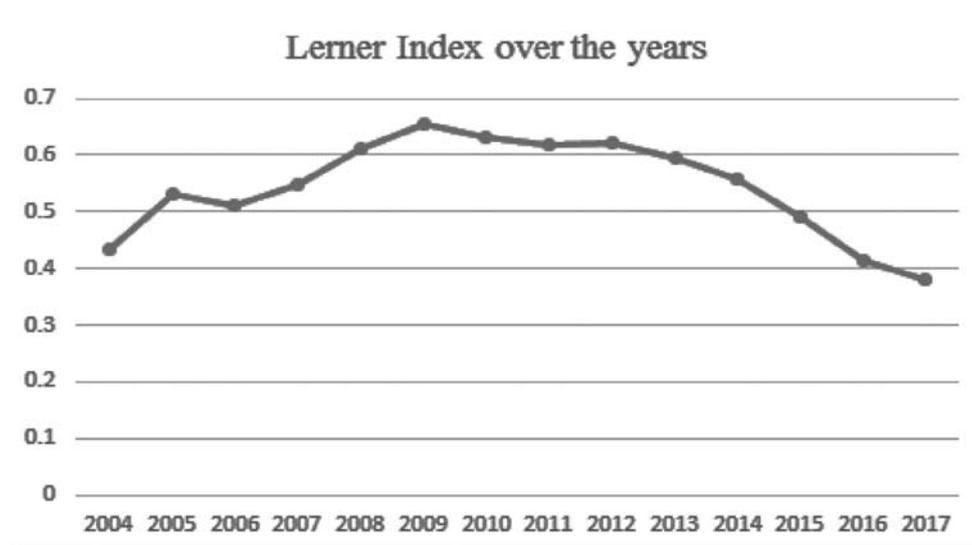


Figure 1: Evolution of Lerner Index over the years

Furthermore, our results are in line with (Bikker et al., 2007; Claessens & Laeven, 2004; Hassan, 2009; Khan & Riazuddin, 2009). In addition, the downward bias of competition levels despite multilevel deregulations and liberalization reforms, are also in line with recent empirical literature such as (2008; Bos et al., 2013; Degl'Innocenti et al., 2017; Koetter et al., 2012; Stiroh & Strahan, 2003) among others. However, these findings are in contrast with (Hanif, 2017; Mirza et al., 2016) who reports perfect competition through estimation of Panzer and Rosse H-statistic for Pakistan, to which, our results are difficult to compare if not comparable at all.

Impact of Market Power and Capital Requirements on Banking Stability

Table 3 reports findings estimated through two step dynamic system GMM, suggesting significantly positive influence of market power in case of liquidity risk whereas negative influence in terms of default risk. Indicating that increased competition results in decrease in riskiness of banks. This line of reasoning is consistent with the competition stability view.

Focusing on the liquidity risk, reveals that market power positively influences liquid assets and hence decreasing liquidity risk in the case of Pakistan. The estimated coefficients are statistically significant and consistent across specifications. These findings are in line with (Sarkar & Sensarma, 2016) who reported similar findings for Indian banks. Moreover, profitability measure is positively influencing liquidity ratio suggesting that those banks who are generating higher profits will tend to have lower liquidity problems. However, the coefficient is statistically insignificant. Similarly, coeffi-

cients for size and cycle are significantly positive indicating that large banks are having slightly higher levels of liquid assets and that these large banks may not have difficulties in meeting their obligations. Similarly, higher level of economic activity is also associated with holding slightly higher levels of liquid assets in the case of Pakistan. These findings are consistent with (Sarkar & Sensarma, 2016).

Similarly, in line with the competition stability view, market power is negatively affecting default risk. This finding is in contrast with (Forsbaeck & Shehzad, 2015) and suggests that increased competition is negatively associated with default risk. Similarly, ROA, size and cycle are negatively associated with default risk suggesting that increased profitability, enhanced economic activity and larger bank size will result in lower default risk in the case of Pakistan.

Table 2
Descriptive Statistics and Pairwise Correlations

Variable	Mean	Standard Deviation	Maximum	Minimum	N
LR	0.472	0.127	0.819	0.074	385
DR	2.126	3.684	28.190	-2.854	385
Lerner	0.706	0.197	0.867	-2.028	385
CAR	16.555	10.244	61.83	-4.62	385
ROA	0.378	1.943	6.430	-7.430	385
Size	18.890	1.375	21.710	15.207	385
Cycle	3.821	1.401	6.18	1.61	385

	<i>LR</i>	<i>DR</i>	<i>LL</i>	<i>CAR</i>	<i>ROA</i>	<i>Size</i>	<i>Cycle</i>
<i>LR</i>	1						
<i>DR</i>	0.278	1					
<i>Lerner</i>	0.087	0.152	1				
<i>CAR</i>	0.358	0.137	0.181	1			
<i>ROA</i>	0.305	0.676	0.287	0.399	1		
<i>Size</i>	0.232	0.315	0.306	0.078	0.445	1	
<i>Cycle</i>	0.204	0.139	0.217	0.085	0.220	0.102	1

Focusing on the restraining effects of capitalization requirements on stability indicators, we postulate that risk exposure of banks will be reduced with higher capital buffers. Our results support this view suggesting that holding higher capital will significantly reduce bank's risk exposure in terms of liquidity as well as default risk. These findings are consistent with most of the relevant literature.

Moreover, for robustness purposes, we also report bank level fixed effects for both models. Where it can be clearly observed that our results largely remain unchanged and are robust across specifications with only a few exceptions. However, we prefer and go by the results of two step system GMM for its dynamic nature and properties.

Table 3
Regression Results

Dependent Variable	<i>Liquidity Risk</i>		<i>Default Risk</i>	
	<i>GMM</i>	<i>FE</i>	<i>GMM</i>	<i>FE</i>
<i>Constant</i>	-0.839 (0.198)*	-0.928 (0.221)*	2.789 (1.817)	3.440 (1.801)***
<i>Lerner</i>	0.077 (0.054)***	0.165 (0.068)**	-2.569 (0.803)*	-0.128 (0.041)*
<i>CAR</i>	0.037 (0.001)**	0.004 (0.009)*	-0.035 (0.014)*	-0.005 (0.007)**
<i>ROA</i>	0.012 (0.009)	-0.008 (0.003)	-0.598 (0.138)**	-0.557 (0.032)
<i>Size</i>	0.064 (0.010)*	0.0519 (0.011)	-0.024 (0.117)**	-0.062 (0.090)*
<i>Cycle</i>	0.066 (0.002)**	0.005 (0.004)***	-0.188 (0.053)*	-0.039 (1.801)***
<i>F- Stat</i>	24.96*	3.81*	97.18*	13.59*
<i>R² Within</i>		0.426		0.608
<i>Between</i>		0.742		0.868
<i>Overall</i>		0.561		0.704
<i>AR2 Test</i>	-0.33		-0.17	
<i>(P-Value)</i>	(0.742)		(0.85)	
<i>Hansen J Test</i>	19.28		21.22	
<i>(P-Value)</i>	(0.38)		(0.19)	

, ** and * indicates statistical significance at 1, 5 and 10% levels respectively. Robust standard errors are reported in parenthesis*

Finally, the estimated specifications exhibit strong goodness of fit as all of the estimated F-statistics are highly significant. Similarly, AR2 test indicates that second order correlations among first differenced errors do not exist in our estimated models. Similarly, the Hansen J-statistics is also found to be insignificant indicating that the identifying restrictions are valid.

Discussion

Given the unique services provided by the banks, soundness and stability concerns were always at the center of banking policy debates (Danisman & Demirel, 2018). In the banking literature, the tradeoff between competition and stability has resulted in two opposing views. The one advanced by (Keeley, 1990) is commonly known as the competition fragility view, which has drawn major support in the literature. On the other hand, a relatively new body of literature supports the competition stability view advanced by (Boyd & De Nicolo, 2005).

Given these opposing predictions, in this study, we tested the two views for Pakistani banking industry. Using a relatively recent annual data set (2004 to most recent 2017, a period characterized by extensive and sweeping regulatory changes, consolidations and other market pressures that could potentially alter the competitive landscape and condition banks' behavior), for an unbalanced panel of 30 banks, we used dynamic panel data analysis techniques of two step system GMM. Our findings could be summarized as follows.

The Lerner index for market power reveals that monopolistic conditions prevail in Pakistani banking industry. These dynamics could be attributed to the increased concentration and recent wave of amalgamations in the industry commensurate with the too big to fail sentiment and can have profound implications⁴ as it can potentially lead to collusive practices among others (Bos et al., 2013). These findings are in contrast to (Khan & Hanif, 2017a, 2017b, 2017c; Mirza et al., 2016) who found perfect competition in the case of Pakistan utilizing various measures of competition. However, our findings are consistent with (Bikker et al., 2007; Claessens & Laeven, 2004; Khan & Riazuddin, 2009).

Subsequently, we tried to find out the effects of market power on risk measures including liquidity and default risk indicators. Our findings render support towards the competition stability paradigm of (Boyd & De Nicolo, 2005) in both cases. Suggesting that infusing further competition will lead to enhanced stability in the banking industry. These findings are consistent with (Demsetz et al., 1996; Salas & Saurina, 2003; Bofondi & Gobbi, 2003; Beck et al., 2006; Berger et al., 2009; Agoraki et al., 2011; Forssbaeck & Shehzad, 2015) among others.

Finally, we introduced capital requirements as a determinant of risk and find evidence in favor that higher capital buffers make the banks more risk averse (Keeley, 1990; Allen & Gale, 2000; Hellmann et al., 2000; Ghosh, 2009; Sarkar et al., 2016). This further imply that higher capitalization ratios should be encouraged.

⁴ Recently the central bank of Pakistan designated three domestic banks to be systemically important.

Conclusion

Given that, competition stability nexus has been established in the case of Pakistan. This essentially implies that at policy level, infusing greater competition may break the monopoly power and may lead to higher stability. Our results support this view to improve the competitive conditions of banking industry by and large. In addition, we suggest to mediate the tradeoff between competition stability and or fragility with regulatory tools such as capital requirements which is found to be strongly associated with risk exposure of banks. This essentially imply that as banks will have greater capital buffer, there will be lesser stability concerns.

Limitations

Just like any other study, this study too has certain limitations. For instance we largely rely on accounting based data and ignores market based instruments for risk measures. Moreover, we did not study the underlying causes that resulted in changes in competitive conditions in the banking system. In addition, we relied on a single measure of competition only, which could be a major binding factor in terms of alternative implications. Finally we introduce all the banks into our analytical framework controlling only for size and profitability and did not differentiate between different types of banks such as Islamic and conventional banks or public, private and local and foreign banks. Similarly, we ignored Islamic banking window operations of several conventional banks which could reveal an entirely different story.

References

- Abedifar, P., Molyneux, P., & Tarazi, A. (2013). Risk in Islamic banking. *Review of Finance*, 17(6), 2035–2096.
- Afzal, A. (2015). *The Impact of Market Discipline on Banks' Capital Adequacy: Evidence From an Emerging Economy*. Retrieved from
- Afzal, A., & Mirza, N. (2010). *The Determinants of Interest Rate Spreads in Pakistan's Commercial Banking Sector*. Centre for Research in Economics and Business.
- Agoraki, M.-E. K., Delis, M. D., & Pasiouras, F. (2011). Regulations, competition and bank risk-taking in transition countries. *Journal of Financial Stability*, 7(1), 38–48.
- Aleemi, A. R., & Azam, M. (2015). The Nexus of financial deepening, Economic growth and poverty: The case of Pakistan. *Business Review*, 10(2).
- Aleemi, A. R., & Azam, M. (2017). The Integration of Financial Markets in Pakistan: New Extensions and Evidence from Bounds Testing and TYDL Granger Non-Causality Approach. *Abasyn University Journal of Social Sciences*, 10(1).
- Allen, F., & Gale, D. (2000). *Comparing financial systems*. MIT press.
- Allen, F., & Gale, D. (2004). Competition and financial stability. *Journal of money, credit and banking*, 453-480.
- Apergis, N. (2015). Competition in the banking sector: New evidence from a panel of emerging market economies and the financial crisis. *Emerging Markets Review*, 25, 154–162.
- Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-

- components models. *Journal of Econometrics*, 68(1), 29–51.
- Ariss, R. T. (2010). On the implications of market power in banking: Evidence from developing countries. *Journal of Banking & Finance*, 34(4), 765–775.
- Arping, S. (2014). *Does Competition make Banks more Risk-seeking?* (No. 14-059/IV). Tinbergen Institute Discussion Paper.
- Bakkar, Y., Rugemintwari, C., & Tarazi, A. (2017). Charter value and bank stability before and after the global financial crisis of 2007-2008. Available at SSRN 2800616.
- Baltagi, B. (2008). *Econometric analysis of panel data*. John Wiley & Sons.
- Baum, C. F., Schaffer, M. E., & Stillman, S. (2003). Instrumental variables and GMM: Estimation and testing. *Stata Journal*, 3(1), 1–31.
- Beck, T. (2007). Bank concentration and fragility. impact and mechanics. In *The risks of financial institutions* (pp. 193–234). University of Chicago Press.
- Beck, T., De Jonghe, O., & Schepens, G. (2013). Bank competition and stability: cross-country heterogeneity. *Journal of Financial Intermediation*, 22(2), 218–244.
- Beck, T., Demirgüç-Kunt, A., & Levine, R. (2006). Bank concentration, competition, and crises: First results. *Journal of Banking & Finance*, 30(5), 1581–1603.
- Berger, A. N. (2009). Comments on Bank Market Structure, Competition, and SME Financing Relationships in European Regions By Mercieca, Schaeck, and Wolfe. *Journal of Financial Services Research*, 36(2-3), 157.
- Besanko, D., & Thakor, A. V. (1995). 10 Relationship banking, deposit insurance and bank portfolio choice. *Capital Markets and Financial Intermediation*, 292.
- Bikker, J. A., & Spierdijk, L. (2008). How banking competition changed over time. *Discussion Paper Series/Tjalling C. Koopmans Research Institute*, 8(04). Retrieved from
- Bikker, J. A., Spierdijk, L., & Finnie, P. (2007). The impact of market structure, contestability and institutional environment on banking competition. *Discussion Paper Series/Tjalling C. Koopmans Research Institute*, 7(29).
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115–143.
- Bofondi, M., & Gobbi, G. (2003). Bad loans and entry in local credit markets. *Bank of Italy*.
- Boot, A. A., & Greenbaum, S. I. (1995). Bank regulation, reputation and rents: theory and policy implications. *Capital Markets and Financial Intermediation*, 262.
- Bos, J. W., Kolari, J. W., & Van Lamoen, R. C. (2013). Competition and innovation: Evidence from financial services. *Journal of Banking & Finance*, 37(5), 1590–1601.
- Bourkhis, K., & Nabi, M. S. (2011, March). Have Islamic banks been more resistant than conventional banks to the 2007-2008 financial crisis. In *17th annual conference of the Economic Research Forum, Antalya, Turkey*.
- Boyd, J. H., & De Nicolo, G. (2005). The theory of bank risk taking and competition revisited. *The Journal of Finance*, 60(3), 1329–1343.
- Boyd, J. H., De Nicolò, G., & Jalal, A. M. (2006). *Bank risk-taking and competition revisited: New theory and new evidence*. 60(3), 1329–1343.

- De Nicoló, M. G., Jalal, A. M., & Boyd, J. H. (2006). *Bank risk-taking and competition revisited: New theory and new evidence* (No. 6-297). International Monetary Fund.
- Boyd, J. H., De Nicoló, M. G., & Jalal, A. M. (2009). *Bank competition, risk and asset allocations* (No. 9-143). International Monetary Fund.
- Boyd, J. H., & Runkle, D. E. (1993). Size and performance of banking firms: Testing the predictions of theory. *Journal of Monetary Economics*, 31(1), 47–67.
- Cabrera, M. D. (2016). Essays on market discipline, banking and regulation.
- Caminal, R., & Matutes, C. (2002). Market power and banking failures. *International Journal of Industrial Organization*, 20(9), 1341–1361.
- Carletti, E., & Hartmann, P. (2003). Competition and stability: What's special about banking. *Monetary history, exchanges rates and financial markets: Essays in honour of Charles Goodhart*, 2, 202-229.
- Carletti, E., Hartmann, P., & Spagnolo, G. (2007). Bank mergers, competition, and liquidity. *Journal of Money, Credit and Banking*, 39(5), 1067–1105.
- Chan, Y.-S., Greenbaum, S. I., & Thakor, A. V. (1986). Information reusability, competition and bank asset quality. *Journal of Banking & Finance*, 10(2), 243–253.
- Čihák, M., & Hesse, H. (2010). Islamic banks and financial stability: An empirical analysis. *Journal of Financial Services Research*, 38(2-3), 95–113.
- Cihák, M. M., Wolfe, S., & Schaeck, K. (2006). *Are more competitive banking systems more stable?* (No. 6-143). International Monetary Fund.
- Claessens, S., Klingebiel, D., & Laeven, L. (2004). Resolving systemic financial crises: policies and institutions. *World Bank policy research working paper*, (3377).
- Danisman, G. O., & Demirel, P. (2019). Bank risk-taking in developed countries: The influence of market power and bank regulations. *Journal of International Financial Markets, Institutions and Money*, 59, 202-217.
- Degl'Innocenti, M., Mishra, T., & Wolfe, S. (2018). Branching, lending and competition in Italian banking. *The European Journal of Finance*, 24(3), 208-230.
- Demirgüç-Kunt, A., & Huizinga, H. (2004). Market discipline and deposit insurance. *Journal of Monetary Economics*, 51(2), 375–399.
- Demirguc-Kunt, A., & Martínez Pería, M. S. (2010). *A framework for analyzing competition in the banking sector: an application to the case of Jordan*. The World Bank.
- Demsetz, R. S., Saldenberg, M. R., & Strahan, P. E. (1996). Banks with something to lose: The disciplinary role of franchise value. *Economic Policy Review*, 2(2).
- Dewatripont, M., Rochet, J. C., & Tirole, J. (2010). *Balancing the banks: Global lessons from the financial crisis*. Princeton University Press.
- Edwards, F. R., & Mishkin, F. S. (1995). *The decline of traditional banking: Implications for financial stability and regulatory policy* (No. w4993). National Bureau of Economic Research.
- Forssbäck, J., & Shehzad, C. T. (2014). The conditional effects of market power on bank risk—cross-country evidence. *Review of Finance*, 19(5), 1997-2038.
- Ghanem, A. (2017). The impact of Basel II on the banking strategies in the Middle East and North

- African (MENA) region. *Journal of Banking Regulation*, 18(1), 48–60.
- Ghosh, S. (2009). Charter value and risk-taking: evidence from Indian banks. *Journal of the Asia Pacific Economy*, 14(3), 270–286.
- Hall, A. R. (2005). *Generalized method of moments*. Oxford university press.
- Hanif, M. N. (2017). *A Formal Test of Competition in the Banking Sector of Pakistan: An Application of PR-H Statistic*. State Bank of Pakistan, Research Department.
- Haq, M., Avkiran, N. K., & Tarazi, A. (2019). Does market discipline impact bank charter value? The case for Australia and Canada. *Accounting & Finance*, 59(1), 253-276.
- Hellmann, T. F., Murdock, K. C., & Stiglitz, J. E. (2000). Liberalization, moral hazard in banking, and prudential regulation: Are capital requirements enough?. *American economic review*, 90(1), 147-165.
- Hesse, H., & Cihak, M. (2007). *Cooperative banks and financial stability*. International Monetary Fund.
- Hussein, K. (2016). Bank-Level Stability Factors and Consumer Confidence—A Comparative Study of Islamic and Conventional Banks' Product Mix. In *Islamic Finance* (pp. 86-104). Palgrave Macmillan, Cham.
- Jiménez, G., Lopez, J. A., & Saurina, J. (2013). How does competition affect bank risk-taking? *Journal of Financial Stability*, 9(2), 185–195.
- Kasman, S., & Kasman, A. (2015). Bank competition, concentration and financial stability in the Turkish banking industry. *Economic Systems*, 39(3), 502–517.
- Keeley, M. C. (1990). Deposit insurance, risk, and market power in banking. *The American economic review*, 1183-1200.
- Khan, M. U. H., & Hanif, M. N. (2017a). A Formal Test of Competition in the Banking Sector of Pakistan: An Application of PR-H Statistic. *SBP Research Bulletin*, 91.
- Khan, M. U. H., & Hanif, M. N. (2017b). An Empirical Evaluation of “Structure-Conduct-Performance” and “Efficient-Structure” Paradigms in the Banking Sector of Pakistan. *SBP Research Bulletin*, 90.
- Khan, M. U. H., & Hanif, M. N. (2017c). Measuring Competition in the Banking Sector of Pakistan: An Application of Boone Indicator. *Journal of Independent Studies & Research: Management & Social Sciences & Economics*, 15(2), 47–60.
- Khan, M.-H., & Riazuddin, R. (2009). Concentration and competition in banking sector of Pakistan: empirical evidence. *SBP Working Paper Series*, 28.
- Koetter, M., Kolari, J. W., & Spierdijk, L. (2012). Enjoying the quiet life under deregulation? Evidence from adjusted Lerner indices for US banks. *Review of Economics and Statistics*, 94(2), 462–480.
- Koskela, E., & Stenbacka, R. (2000). Is there a tradeoff between bank competition and financial fragility? *Journal of Banking & Finance*, 24(12), 1853–1873.
- Laeven, L., & Levine, R. (2009). Bank governance, regulation and risk taking. *Journal of Financial Economics*, 93(2), 259–275. <https://doi.org/https://doi.org/10.1016/j.jfineco.2008.09.003>
- Liang, K., Hassan, M. U., & Ho, C. (2009). *U.S. Patent No. 7,474,671*. Washington, DC: U.S. Patent

- and Trademark Office.
- Mahmood-ul-Hasan Khan, & Riazuddin, R. (2009). *Concentration and competition in banking sector of Pakistan: empirical evidence*. State Bank of Pakistan.
- Marcus, A. J. (1984). Deregulation and bank financial policy. *Journal of Banking & Finance*, 8(4), 557–565.
- Martinez-Miera, D., & Repullo, R. (2010). Does competition reduce the risk of bank failure? *Review of Financial Studies*, 23(10), 3638–3664. <https://doi.org/https://doi.org/10.1093/rfs/hhq057>
- Matutes, C., & Vives, X. (1996). Competition for deposits, fragility, and insurance. *Journal of Financial Intermediation*, 5(2), 184–216.
- Matutes, C., & Vives, X. (2000). Imperfect competition, risk taking, and regulation in banking. *European Economic Review*, 44(1), 1–34. [https://doi.org/https://doi.org/10.1016/S0014-2921\(98\)00057-9](https://doi.org/https://doi.org/10.1016/S0014-2921(98)00057-9)
- Maudos, J., & de Guevara, J. F. (2007). The cost of market power in banking: Social welfare loss vs. cost inefficiency. *Journal of Banking & Finance*, 31(7), 2103–2125.
- Mirza, F. M., Bergland, O., & Khatoon, I. (2016). Measuring the degree of competition in Pakistan's banking industry: an empirical analysis. *Applied Economics*, 48(53), 5138–5151.
- Mirza, N., Naqvi, B., Rizvi, S. K. A., & Rahat, B. (2016). *Potential of market discipline in Pakistan: The bank depositors' perspective* (Working Paper No. 040). International Food Policy Research Institute
- Mishkin, F. S. (1999). Financial consolidation: Dangers and opportunities. *Journal of Banking & Finance*, 23(2), 675–691.
- Nicoló, G. D., Bartholomew, P., Zaman, J., & Zephirin, M. (2004). Bank consolidation, internationalization, and conglomeration: Trends and implications for financial risk. *Financial Markets, Institutions & Instruments*, 13(4), 173–217.
- Northcott, C. A., & others. (2004). *Competition in banking: A review of the literature*. Retrieved from <http://core.ac.uk/download/pdf/6253763.pdf>
- Panzar, J. C., & Rosse, J. N. (1987). Testing for “monopoly” equilibrium. *The Journal of Industrial Economics*, 35(4), 443–456.
- Repková, I. (2012). Market power in the Czech banking sector. *Journal of Competitiveness*, 4(1).
- Rojas, C. (2011). Market power and the Lerner Index: a classroom experiment. *Journal of Industrial Organization Education*, 5(1), 1–19.
- Salas, V., & Saurina, J. (2003). Deregulation, market power and risk behaviour in Spanish banks. *European Economic Review*, 47(6), 1061–1075.
- Sarkar, S., & Sensarma, R. (2016). The relationship between competition and risk-taking behaviour of Indian banks. *Journal of Financial Economic Policy*, 8(1), 95–119.
- Smith, M. B. D., De Nicoló, M. G., & Boyd, J. H. (2003). *Crisis in competitive versus monopolistic banking systems* (No. 3-188). International Monetary Fund.
- Soedarmono, W., Machrouh, F., & Tarazi, A. (2011). Bank market power, economic growth and financial stability: Evidence from Asian banks. *Journal of Asian Economics*, 22(6), 460–470.
- Soedarmono, W., Machrouh, F., & Tarazi, A. (2013). Bank competition, crisis and risk taking: Evidence

- from emerging markets in Asia. *Journal of International Financial Markets, Institutions and Money*, 23, 196–221.
- Soedarmono, W., & Tarazi, A. (2014). Market structure, financial intermediation and riskiness of banks: Evidence from Asia Pacific. *Financial Intermediation and Riskiness of Banks: Evidence from Asia Pacific (February 18, 2014)*.
- Stiglitz, J. E., & Weiss, A. (1981). Credit rationing in markets with imperfect information. *The American Economic Review*, 71(3), 393–410.
- Stiroh, K. J., & Strahan, P. E. (2003). Competitive dynamics of deregulation: Evidence from US banking. *Journal of Money, Credit and Banking*, 35(5), 801–828.
- Tanda, A. (2015). The effects of bank regulation on the relationship between capital and risk. *Comparative Economic Studies*, 57(1), 31–54.
- Werner, R. A. (2016). A lost century in economics: Three theories of banking and the conclusive evidence. *International Review of Financial Analysis*, 46(2016), 361–379.
- Williams, J. (2012). Efficiency and market power in Latin American banking. *Journal of Financial Stability*, 8(4), 263–276.
- World Bank. (2011). Lerner Index in Banking Market for Pakistan. Retrieved from FRED, Federal Reserve Bank of St. Louis website: <https://fred.stlouisfed.org/series/DDOI04PKA066NWDB>
- Yaldiz, E., & Bazzana, F. (2010). The effect of market power on bank risk taking in Turkey. *Financial Theory and Practice*, 34(3), 297–314.
- Zhang, J., Jiang, C., Qu, B., & Wang, P. (2013). Market concentration, risk-taking, and bank performance: Evidence from emerging economies. *International Review of Financial Analysis*, 30, 149–157.

ROLE OF COMMUNICATION AND PARTICIPATION IN PROMOTING EMPLOYEES OPENNESS TO CHANGE: MEDIATING ROLE OF TRUST IN SUPERVISOR

Ayesha Nazish Butt¹, Dr. Sumaira Rehman² and Khadija Mushtaq³

Abstract

This paper is based on exploring how managers' communication with employees and employees' participation in decision making plays its role for promoting their openness towards change through a mediator i.e. trust in supervisor. This research is conducted within the context of public sector schools working in Punjab province of Pakistan. Structured questionnaire was used as a source of data collection. 397 questionnaires were distributed randomly among teachers of public schools in Pakistan. Hypotheses were tested by using SEM. Findings supported that all the variables (managerial communication, employee participation, and trust on supervisor) showed significant impact upon openness of organizational workforce towards change process. Moreover, the influence of employee participation and managerial communication on employee's openness towards accepting change is partially mediated via 'trust in supervisor'. This study provide insight to leaders or supervisors who are more close to workers that which factors (such as employee participation and managerial communication) play significant role for overcoming resistance from employees in the era of change.

Keywords: Employee Participation, Managerial Communication, Trust in Supervisor, Openness to Chang, Education.

JEL Classification: Z000

Introduction

Organizations are facing intense changes in their external environments over the past decades. So due to an indication of such large-scale and insightful changes in the global environment, change and alteration cannot be dealt as an option; it is now vital for achieving the enduring accomplishments and success of global businesses (Myrtle et al., 2008).

¹ Ph.D. Scholar, Superior University, Lahore, Pakistan. Email: Ayesha.nazish@uog.edu.pk

² Rector - The Superior Group College Lahore, Pakistan. Email: sumaira.rehman@superior.edu.pk

³ Lecturer, University of Gujrat, Gujrat, Pakistan. Email: Khadija.mushtaq@uog.edu.pk

For meeting the competitive environment of this global era education is one of the most suitable options. It was mentioned by Kazmi (2004) that development of human beings can be done through educating them. Memon (2007) also identified that there exists a close relation between education and relative development but the developmental signs in Pakistan, after more than five decades, are not showing affirmative and positive results. To deal this problem, article 25-A form the “Constitution of Pakistan” make the government responsible for providing high quality education, free of cost to all children who fall in age category of 5-16 years (Ali, 2015). So, government is playing critical and vital role in making quality education affordable and accessible through interventions in public sector of education. Change is promoted in public sector by delivering quality, affordability and sustainability in education for the masses of Pakistan (Change in Education, 2013).

Marvelous and wonderful efforts are made which are aimed at improving access to education for this, incentives are provided including provision of free textbooks, missing infrastructure and stipends are provided to the girl students to increase their enrolments (Punjab Education Sector Reform Programme). Furthermore, government of Pakistan has taken the initiative to start a ‘4-year literacy’ program through which free education will be provided to approximately three million children, who have very poor family background along with special focus on girls to make education accessible for them (Farooq, 2014). Public schools of province Punjab are targeted for this research because public sector schools have been performing poorly in comparison with the private schools from the past many years. In the recent years, government intervention has taken place and government has promoted changes in order to make education available to even the lowest class.

Moreover, the basic phenomenon understudy in this research paper is the role of managerial communication (MC) and employee’s participation (EP) in promoting their openness towards change through the mediating role of supervisory trust in public schools of Punjab, Pakistan. The issue under consideration is important mainly because trust in supervisor, is an important issue in an organization to bring change, and without giving employees empowerment to make decision and informing them about changes going to take place in organization, change is unlikely to take place. According to Asgari, Ahmadi, and Jamali (2015) mutual interconnectedness and trust worthiness between individuals working together in a particular work process, develop a very motivating culture of the organization, which in turn enhances total performance, consequently resulting in a steady excellence of an organization. As indicated by Magner et al. (2011) that an organization can build its employees trust on their supervisors by allowing them to participate give suggestions while making any decision, as well as, the perceived effectiveness of communication between management & employees and trust were significantly related to each other (Zeffane et al., 2011). To bring openness to change among employees, ensuring participation of employees in decision making process (Wanberg & Banas, 2000), communication with management (Lautner, 1999) and trust in supervisor (Devos & Buelens, 2006) are key ingredients.

Problem Statement

A study conducted in 2009 highlighted problems that public sector schools were facing including large number of students, poor results, poor performance of heads in respect of decision making and leading, inappropriate behavior and motivation of teachers, poor capability to enhance creativity among students, lack of computer labs and old curriculum (Imran, 2011). Currently the issues such as communication with management, managerial trust and commitment are getting importance yet studies examining the interaction between all of these three variables are lacking (Zeffane et al., 2011). So the problem statement is formulated as:

How communication from the side of managers and participation from the side of employees helps in promoting workforce openness towards accepting change through the mediating role of supervisory trust in public schools of Pakistan?

Objective

Main aim of this research is: To examine the influence of communication from managers and participation from employees in promoting employee's acceptance towards change through the mediating role of trust on supervisor in public schools of Pakistan.

Theoretical Background and Hypotheses

Employee Participation

The term employee participation was used as "a voice of the employees in decision making process" (Delaney, 1996). Whereas, it is also defined as "a process of employee involvement designed to provide employees with the opportunity to influence and where appropriate, take part in decision making on matters which affect them" (CIPD, 2009). In many countries the term participation looks as if it is grounded on a difference in the powers and roles of employers and with their workforce, each having their specific set of accountabilities and responsibilities (Arrigo & Casale, 2010). Participation is considered to be equally effective for both managers and lower level employees as well as there is no difference in manufacturing, service, and research firms, in term of taking advantage through the usefulness of participatory behaviour by their employees (Miller & Monge, 1986). Employee's participation play self-effacing role for the acceptance of situation (Wagner & Gooding, 1987). According to Rodda (2007), the increased participation of employees and supervisory support are proved to be positive predictors of employee's openness to change. Also, participation while making any decision is vital contributor in building the employees feeling of satisfaction with supervisor and with work (Schuler, 1980). Moreover, employee participation in the process of change brings positive effects for organization whereas the degree of employee participation is predicted by perceived participation opportunities, supervisory support and constructive change attitudes which

were integrated into one scale (Antoni, 2004). Therefore, it is expected that;

H1: Participatory behavior of employees has significant influence on employees' openness towards accepting change.

H2: Participation from employees has significant influence on building trust in their supervisors.

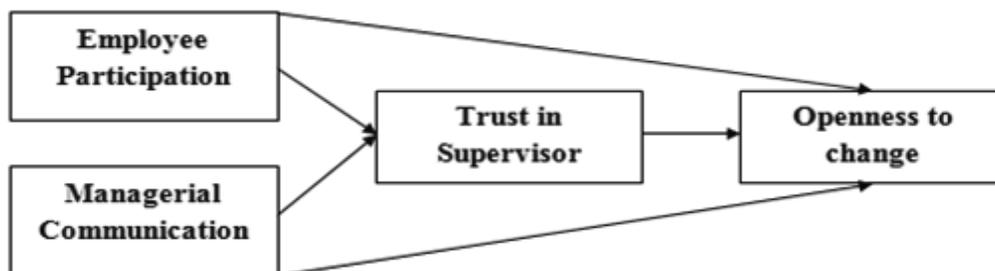


Figure 1: Proposed Research Model

Managerial Communication

The communication is considered important in the change process as it was indicated by Neves and Eisenberger (2012) that managerial communication with their employees have positive relationship with the temporal change in perceived organizational support (POS). Particularly the results of another study on human resource management (HRM) suggest that direct discussion and consultation between higher management and employees is important element in the major change processes (Morgan & Zeffane, 2003). Moreover, change-related communications are essential for creating readiness for change in an organization (McKay, 2012), as well as, communication and trust are the strongest associated variables (Zeffane et al., 2011). According to Kelloway and Chawla (2004) it is revealed that managerial communication can directly or indirectly influence openness to change. Therefore, it is expected that;

H3: Managerial communication has significant influence on openness of employees to accept change.

H4: Communication from managers has significant influence on employees' trust in their supervisors.

Trust in Supervisor and employees' Openness towards Change

Openness of workers towards accepting the change is an important component for bringing change. Armenakis and Bedeian (1999), state that openness to change (OTC) can be defined as "an individual's adaptation to the dynamic and diverse global business environment". Whereas, according to Shin (2012), employee openness to change is due to two factors: one is his/her own psychological resilience while inducements from organizations size also play a positive role.

Trust-in-supervisor can be defined in term of employee tendency to trust and supervisors

own attributes such as his ability, integrity and generosity (Poon, Rahid, & Othman, 2006). For building the trust of employees direct leaders or supervisors play particularly important role (Dirks & Ferrin, 2002). It is mainly because employees trust on their supervisors or leaders has been considered as a valuable tool behind the positive outcomes of an organization (Hassan et. al., 2012). Therefore, it is expected that;

H5: Employee's trust in their supervisors has strong influence on employee's openness towards accepting change.

Trust in Supervisor as a Mediator

Openness of employees towards the change is derived from the context-specific variables such as information received about changes and involvement of workers in the PDM i.e. process of making decision regarding upcoming changes (Wanberg & Banas, 2000) and trust on supervisor and executive management (Devo & Buelens, 2003). It is suggested that management of organizations should encourage their employees to have a) active participation & involvement in organizational PDM, b) build confidence and c) communicate transparently about the need for change (Boohene & Williams, 2012).

Ariani and Ebrahimi (2005) also suggest management that it is better to give employees opportunity to contribute in the process of making decisions and also revealed through survey results that employee participation and managerial communication have significant relation with trust in organization and these measures can also improve employees trust in leaders and top managers. Trust is an essential feature while developing the communication relationship (Wulandari & Burgess, 2010), as well as, the trust in supervisor play a role of mediator between communication provided by management and employees openness to accept change within organization (Ribbers, 2009). According to Mahajan et al. (2012) trust in top management play a role of mediator between managerial communication and OC i.e. organizational commitment act as a partial mediator between employee involvement and organizational commitment. Survey results of another study showed that trust on supervisor can fully mediate the effect of MC on workers' openness to accept organizational change and it can partially mediate the relationship between openness to change (OTC) and employee participation (Ertürk, 2008). Therefore, it is hypothesized that;

H6: Trust on supervisor play mediatory role between participation of employees and their openness towards accepting change.

H7: Trust on supervisor play mediatory role between communication from managers and workers openness towards accepting change.

Methodology

Research Approach

For this research, assumption underlying in the positivism approach was followed because the main aim is to investigate those factors which play important role for promoting employees' openness to change in education sector i.e. to investigate the role of MC and EP in promoting employees' OTC through a mediator i.e. trust in supervisor in public schools of Pakistan. As, it was suggested by Creswell (2003) that "if the problem is to find out the factors that can influence outcome or to test theory or explanation, then positivism (quantitative approach) is most suitable". Therefore, this research was carried out using survey method and source used was questionnaire (close ended questions) for data collection and statistical analysis for drawing results of this research (Creswell & Clark, 2011).

Sampling Design

Zikmund (2003) defined sampling as "The process of using a small number of items or parts of a larger population to make conclusions about the whole population". Data for this study was collected from education sector (public schools) of Punjab, Pakistan which has undergone changes in terms of its affordability and availability. There are total 57418 public schools in Punjab, Pakistan which are divided as higher secondary, high, middle, MPS, primary and sMosque schools (School Education Department- Government of Punjab, 2015). Formula of Yamane (1967) was used, i.e. $n = \frac{N}{1 + Ne^2}$, where n = sample size, N = Population (57418), e = margin of error (0.05), is applied to determine the sample size. After applying the formula, sample size was determined to be 397 schools. Total 397 questionnaires were distributed randomly among the schools mentioned above. Principle of the targeted school was requested to fill the questionnaire on behalf of school to represent the true system of the school. Total 325 questionnaires were filled and returned; out of which 300 (75.5 percent) was usable response.

Instrument for Data Collection

For this study questionnaire technique of field survey was used for collecting data from respondents.

Measures

The questionnaire of this research contains information regarding following measures.

- Background information
- Openness to change
- Managerial communication

- Employee participation
- Trust in supervisor

Managerial communication was measured with the help of three dimensions i.e. communication responsiveness, task and career communication. These dimensions were measured by adopting a scale developed by Penley and Hawkins (1985). Employees' participation was measured by adapting a well calibrated scale developed by Ashford (1988). Supervisory trust was measured by adopting a scale which was developed by Nyhan and Marlowe (1997). Openness to change was measured by scale adapted from Desrosiers (2006). All of the scales used to measure the constructs under study, were 'Five Point Likert-type' scales.

Data Analysis

Statistical Techniques

The multivariate statistics was used analyzed the data, which was collected through questionnaire. Reliability of the data collected in this research study was measured by using Cronbach's Alpha. Following the Reliability analysis of the data, descriptive statistics (Frequency) was used to gain insight about data. After this, structure equation modeling technique was used in order to check the relationship among variables i.e. to verify hypothesis.

Reliability Test

Reliability of data collected via questionnaires was ensured through Cronbach's Alpha technique. Cronbach's Alpha was estimated for each individual construct as well as at collective level.

Table 1
Reliability Statistics

Constructs	Cronbach's Alpha
Openness to Change	0.78
Trust in Supervisor	0.89
Employee Participation	0.85
Managerial Communication	0.82
Whole Questionnaire	0.94

Cronbach's Alpha for the all of variables is given in Table 1 which range between 0.89 - 0.78. These values are well above the cutoff point of Cronbach Alpha.

Descriptive Analysis

One hundred and eighty respondents (180) out of 300 were male (60 %) and 222 respondents were married (74 percent). Nine respondents had Inter degree (3 percent), eighty-four respondents (28 %) had Bachelor's educational qualification and 205 respondents had Master's degrees (68 %).

Results

Structural model fitness was assessed by examining the variety of fit indices. For the hypothesized model of this research study, the value of (CMIN/DF) is 2.287, GFI and AGFI indices are 0.974 and 0.961 respectively. CFI value equals to 0.977 and RMSEA is 0.056. All indices met the criteria of their recommended values; therefore, hypothesized model (i.e. relationship of MC and EP with employees' OTC through mediating variable, trust in supervisor) is acceptable.

Table 2

Criteria for goodness of Fit

Criteria of Goodness for Structural Model								
	CMIN	DF	P	CMIN/DF	GFI	AGFI	CFI	RMSEA
Model Values	466.531	204	.000	2.287	0.974	0.961	0.977	0.056
Recommended				≤3	≥0.9	≥0.9	≥0.9	≤0.05

According to Table 2, criteria for measuring the goodness of fit stands within acceptable range. Hence this model is found fit for prediction due to its validity.

Hypothetical Analysis

Hypothetical analysis reveal that there is positive and significant relationship of employee participation with openness to change ($\beta = .327$, $t = 3.083$, $p < 0.05$) and with trust in supervisor ($\beta = .154$, $t = 2.051$, $p < 0.05$); thus, supporting the hypothesis H1 and H2 respectively. In H3 it was hypothesized that managerial communication influence employees' openness to change. Results reveal support for this stated relationship ($\beta = .512$, $t = 3.975$, $p < 0.05$) and therefore H3 is accepted in this research. Findings also indicated that variation in employee's trust in their supervisors is being explained by managerial communication ($\beta = .510$, $t = 5.852$, $p < 0.05$); thus supporting H4. Moreover, it is also found that variation in employee's openness to organizational change is being caused by employee's trust in their supervisors ($\beta = .484$, $t = 8.657$, $p < 0.05$); hence, proved H5 of this research. The path coefficients proposed relationships in the model of study are reported in the Table

3 and Figure 2.

Table 3
Results Summary

Hypothesis	DV	IV	Estimate	S.E	C.R	P	Results
H1	OTC	EP	.327	.106	3.083	.002	Supported
H2	TIS	EP	.154	.075	2.051	.040	Supported
H3	OTC	MC	.512	.129	3.975	***	Supported
H4	TIS	MC	.510	.087	5.852	***	Supported
H5	OTC	TIS	.484	.056	8.657	***	Supported

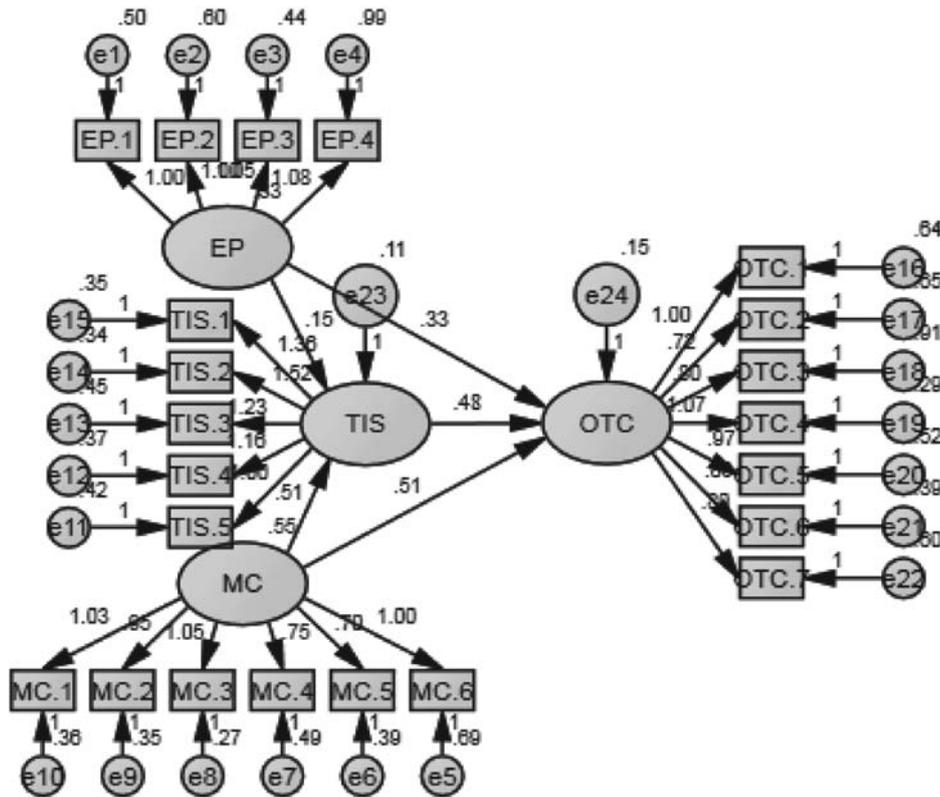


Figure 2: Path coefficients Diagram

Note: OTC= Openness to Change; TIS= Trust in Supervisor; EP= Employee Participation; MC= Managerial Communication.

Mediation Analysis

H6 proposed that effect of participation on openness to change is mediated through their trust in supervisors. The effect of mediation is checked according the process outlines by Baron and Kenny (1986). Accordingly, it is said that mediation occurs through four conditions. First, the independent variable (employee participation) must affect the mediator (trust in supervisor) which is proved by H2; second, mediator must affect dependent variables (openness to change) while controlling for independent variable which is proved by H5; third the IV (employee participation) must affect the DV (openness to change) which is proved by H1; and fourth, the beta coefficient between the IV (EP) and DV (OTC) should either reliably reduce the effect or it can become non-significant when the mediator effect is included. β value without mediator was 0.703 but after including mediator i.e. trust in supervisor β value of employee participation was reduced to 0.667 indicating that mediation has occurred but the value has not reached zero showing that partial mediation has taken place.

In order to check the significance of mediation, Sobel test was applied. T-value of Sobel test was 2.549 and p-value was found to be $0.010 < 0.05$ indicating a significant role of mediation. So H6 is supported. Similarly, H7 proposed that the effect of managerial communication on employees' openness to organizational change is mediated through employee's trust in their supervisors. This hypothesis is also proved according to the process outlines by Baron and Kenny (1986). The first three conditions of mediation as proposed by H7 are fulfilled above (i.e. can be seen in H3, H4 and H5) and to prove fourth condition, β value without mediator was 0.712 but after including mediator i.e. trust in supervisor β value for managerial communication was reduced to 0.672 indicating that partial mediation has taken place. In order to check the significance of mediation, Sobel test was applied. T-value of Sobel test was 3.074 and p-value was found to be $0.002 < 0.05$ indicating a significant role of mediation. Hence, the results provide support for the H7. These findings clarify the relationships between communication, participation, employee's trust on their supervisors and their openness to accept change. Moreover, these findings also provide insight about the mediating role of employees trust on their supervisor.

Discussion

Analytical finding of this research proposed that employees' openness to change is function of several influences. Findings supported that communication; participation and trust appear to have a highly significant impact on OTC. Moreover, effect of MC and EP on their openness towards accepting change is partially mediated through trust on their supervisors. Consistent with the findings of Rodda (2007), it is proved that increased participation of employees is a significant predictor of employee's OTC. Consistent to the studies of (Antoni, 2004), this study proves that employee partici-

pation is based on the supervisory support and trust. This study also proves that there is a positive association among MC and employee's OTC as was proved by (Morgan & Zeffane, 2003). This study also supports a positive relationship between managerial communication and workers' trust in their supervisors which is comparable to the study conducted by Zeffane et al. (2011). Consistent to the findings of (Hassan et al., 2012), it is proved that significant relationship exists between employee's trust in their supervisors and positive outcomes of an organization (i.e., employee's openness towards accepting change).

This study has proved that effect of EP on OTC is mediated through employee's trust in their supervisors as proved by Wanberg and Banas (2000) and Devo and Buelens (2003). Consistent to the findings of Ertürk (2008), this study proves that MC influence on openness for accepting change is mediated through employee's trust in their supervisors. This study finds out the implication of the change adopted and its results and also demonstrate that what role it can play in informing public sector schools about the current situation and further changes that they can make for the betterment of their system. This study also provides suggestions for those organizations which undergo from the large scale change. Most importantly it suggests that employee's reaction towards change matters a lot in the situation of implementing change. The findings highlight the role MC and EP in influencing employee responses towards change. Workforce may be more prompted to the openness of change by a resource close to them (e.g., supervisor) so trust in supervisor is integral to the key findings.

Mediation effect of supervisory trust between the openness to accept change with managerial communication and with employee participation is most important. Research in the area of change can guide organizational leaders or supervisors who are more close to workers to obtain a better understanding of factors which can bring change by overcoming resistance from employees. Few limitations to be discussed here includes, 1) limited generalization due to limited targeted population area wise i.e. only one province of Pakistan. Hence, it can be eliminated via conducting it in future by considering larger sample. This study is cross sectional in nature, however, to evaluate the effect of EP and MC on employees' openness towards accepting change via trust, it is suggested that longitudinal studies can be conducted. It is because change is the core of any business and no business can survive in the dynamic environment by being rigid. It also tells how communication and participation can play an effective role in accepting and implementing change and what the organizations can do to bring employee's openness towards change.

Implication of the study

This study is important because it provide insight to leaders or supervisors who are more close to workers that which factors (such as EP and MC) are significant for overcoming resistance from employees in the era of change. This study also increases the understanding of how participatory behavior of employees in taking decision and managerial communication about important matters helps in promoting employees openness towards accepting change via building trust among them.

Moreover, this research adds an insight into the literature through exploring shared effects of employee participation, managerial communication on employees' openness towards accepting organizational change in the presence of supervisory trust, especially within different cultural perspective i.e. Pakistan.

References

- Ali, E. D. (2015). *Education in Pakistan*. Retrieved April 3, 2016, from Wikipedia: http://en.wikipedia.org/wiki/Education_in_Pakistan.
- Antoni, C. H. (2004). A Motivational Perspective on Change Process and Outcomes. *European Journal of Work and organizational Psychology*, 13(2), 197-216.
- Ariani, M. G., Ebrahimi, S. S., & Saeedi, A. (2011). Managing workplace romance: A headache for human resource leaders. In *2011 3rd International conference on Advance Management Science, IPEDR* (Vol. 19, pp. 99-103).
- Armenakis, A. A., & Bedeian, A. G. (1999). Organizational change: A review of theory and research in the 1990s. *Journal of management*, 25(3), 293-315.
- Arrigo, G., & Casale, G. (2010). *A comparative overview of terms and notions on employee participation*. ILO.
- Asgari, M., Ahmadi, F., & Jamali, M. A. (2015). An Examination of the Relationship between the Tendency towards Spirituality and Organizational Health (Teachers of Second High School Grade in the Department of Education of Tehran's Second Region). *J Educ Manag Stud*, 5(1), 52-60.
- Ashford, S. J. (1988). Individual strategies for coping with stress during organizational transitions. *The Journal of Applied Behavioral Science*, 24(1), 19-36.
- Boohene, R., & Williams, A. A. (2012). Resistance to Organisational Change: A Case Study of Oti Yeboah Complex Limited. *International Business and Management*, 4(1), 135-145.
- Change in Education*. (2013). Retrieved April 3, 2016, from ilmkidunia: http://www.ilmkidunya.com/educational_organizations/educational_ngos_pakistan_change_in_education.aspx
- Chawla, A., & Kelloway, E. k. (2004). Predicting openness and commitment to change. *Leadership & Organization Development Journal*, 25(6), 485-498.
- CIPD. (2009). *Employee Empowerment, Participation and Involvement*. Retrieved April 3, 2016, from http://www.heacademy.ac.uk/assets/hlst/documents/resource_guides/employee_empowerment_perception_and_involvement.pdf
- Creswell, J. (2003). *Research design: qualitative, quantitative approaches and mixed methods*. Thousand Oaks, CA: Sage.
- Creswell, J. W., & Clark, V. L. (2011). *Designing and Conducting Mixed Methods Research* (2nd ed.). SAGE Publications, Inc.
- Delaney, J. T. (1996). Workplace cooperation: current problems, new approaches. *Journal of Labor Research*, 17(1), 45-63.
- Desrosiers, P. (2006). *Openness to change*. Hermenegilde: Pierrette Desrosiers Psychoaching.

- Devo, G., & Buelens, M. (2003, June). Openness to Organizational Change: The Contribution of Content, Context and Process. Vlerick Leuven Gent Management School.
- Dirks, K. T., & Ferrin, D. L. (2002). Trust in Leadership: Meta-Analytic Findings and Implications for Research and Practice. *Journal of Applied Psychology*, 87(4), 611-628.
- Edwards, M. R. (2009). An integrative review of employer branding and OB theory. *Personnel review*, 39(1), 5-23.
- Erturk, A. (2008, January). A trust-based approach to promote employees' openness to organizational change in Turkey. *International Journal of Manpower*, 29(5), 462-483.
- Farooq, K. U. (n.d.). *Our poor education sector*. (A. Nizami, Ed.) Retrieved June 3, 2013, from <http://www.pakistantoday.com.pk/2012/11/17/comment/editors-mail/our-poor-education-sector/>
- Hassan, M., Toylan, N. V., Semerciöz, F., & Aksel, I. (2012). Interpersonal Trust and Its Role in Organizations. *International Business Research*, 5(8), 33-39.
- Imran, M. (2011, June 30). A Comparative Study Of Quality Of Education In Public And Private Secondary Schools Of Punjab. *Pakistan Research Repository*. (J. Memon, Ed.) Rawalpindi, University of Arid Agriculture, Rawalpindi, Pakistan. Retrieved June 4, 2013, from <http://eprints.hec.gov.pk/6418/>
- Jawahar, K. (2012, May 14). *The Much Overlooked SMEs of Pakistan*. (WordPress and zBench) Retrieved March 27, 2016, from Pakonomy: <http://www.pakonomy.com/2012/05/14/the-much-overlooked-smes-of-pakistan/#.UaNGy7QcDcc>
- Kazmi, S. (2004). *Role of Education in Globalization: A Case for Pakistan*. Retrieved March 27, 2016, from <http://developyst.org/files/article/39/Role%20of%20Education%20in%20Globalization.pdf>
- Lautner, D. (1999, July). Communication: The Key to Effective Change Management. 9-42. Retrieved July 4, 2013.
- Magner, N., Welker, R. B., & Johnson, G. G. (2011, August 17). The interactive effects of participation and outcome favourability on turnover intentions and evaluations of supervisors. *Occupational and Organizational Psychology*, 69(2), 135-143. doi:10.1111/j.2044-8325.1996.tb00605.x
- Mahajan, A., Bishop, J. W., & Scott, D. (2012, June 22). Does trust in top management mediate top management communication, employee involvement and organizational commitment relationships? *Journal of Managerial Issues*, 24(2), 173.
- McKay, K. A. (2012). The Effect of Commitment, Communication and Participation on Resistance to Change: The Role of Change Readiness. *Thesis for the Degree of Master of Science in Applied Psychology*. University of Canterbury.
- Memon, G. R. (2007). Education in Pakistan: The Key Issues, Problems and The New Challenges. *Journal of Management and Social Sciences*, 3(1), 47-55. Retrieved March 27, 2016, from <http://heglobal.international.gbtesting.net/media/5179/education%20in%20pakistan%20-%20the%20key%20issues,%20problems%20and%20the%20new%20challenges.pdf>
- Miller, K. I., & Monge, P. R. (1986). Participation, Satisfaction and Productivity :A Meta-Analytic Review. *Academy of Management journal*, 29(4), 727-753.
- Morgan, D., & Zeffane, R. (2003). Employee involvement, organizational change and trust in

- management. *The International Journal of Humman Resource Managemnt*, 14(1), 55-75.
- Myrtle, R. C., Chen, D.-R., Liu, C. & Fahey, D., 2008. Influences on the career commitment of healthcare managers. *health services management research*, 21(5), 262-275.
- Neves, P., & Eisenberger, R. (2012). Management Communication and Employee Performance: The Contribution of Perceived Organizational Support. *Human Performance*, 25(5), 452-464.
- Nyhan, R., & Marlowe, H. (1997). Development and psychometric properties of the organizational trust inventory. *Evaluation Review*, 21(5), 614-635.
- Pakistan education Government role*. (2014). Retrieved March 10, 2016, from Pak Study: <http://pakstudy.com/web/node/1559>
- Penley, L., & Hawkins, B. (1985). Studying interpersonal communication in organizations: a leadership application. *Academy of Management Journal*, 28, 309-26.
- Poon, J. M., Rahid, M. R., & Othman, A. S. (2006). Trust in Supervisor: Antecedents and Effect on Affective Organizational Commitment. *Asian Academy of Management Journal*, 11(2), 35-50. *Punjab Education Sector Reform Programme*. (n.d.). Retrieved April 6, 2016, from PESRP: <http://pesrp.edu.pk/>
- R. Wanberg, C., & T. Banas, J. (2000). Predictors and Outcomes of Openness to Changes in a Reorganizing Workplace. *Journal of Applied Psychology*, 85(1), 132-142.
- Ribbers, I. (2009). Trust, Cynicism, and Organizational Change: The Role of Management. Retrieved March 10, 2016, from <http://www.oaa.nl/download/?id=16102711>
- Robinson, D. A. (2008). Keeping pace with change in SMEs: creating and maintaining congruence and consistency in SMEs in transition economies. *International Journal of Entrepreneurship and Innovation Management*, 8(3), 272-285. Retrieved June 2, 2013, from http://works.bepress.com/david_robinson/2/
- Rodda, J. (2007). A multi-level examination of employee reactions to organizational change. Illinois, Chicago: College of Liberal Arts and Sciences DePaul University.
- Schuler, R. (1980). A Role and Expectancy Perception Model of Participation in Decision Making. *Academy of Management Journal*, 23(2), 331-340.
- School Education Department- Government of Punjab*. (2015). Retrieved March 13, 2016, from punjab.gov.pk: <http://schoolportal.punjab.gov.pk/schoolcensusNew.htm>
- Shin, J. T.-G. (2012). Resources For Change: The Relationships Of Organizational Inducements And Psychological Resilience To Employees' Attitudes And Behaviors Toward Organizational Change. *Academy of Management Journal*, 55(3), 727-748.
- Wagner, J. A., & Gooding, R. Z. (1987). Shared Influence and Organizational Behavior: A Meta-Analysis of Situational Variables Expected to Moderate Participation-Outcome Relationships. *Academy of Management Journal*, 30(3), 524-541.
- Wanberg, C. R., & Banas, J. T. (2000). Predictors and Outcomes of Openness to Changes in a Reorganizing Workplace. *Journal of Applied Psychology*, 85(1), 132-142.
- Wulandari, M. P., & Burgess, J. (2010). Trust and its Relationship to the Quality of Communication and Employee Satisfaction in a Large Indonesian Workplace: A Case Study. *International Journal of Business and Management Studies*, 2(2), 49-55.

Zeffane, R., Tipu, S. A., & Ryan, J. C. (2011). Communication, Commitment & Trust: Exploring the Triad. *International Journal of Business and Management*, 6(6), 77-87.

Zikmund, W. G. (2003). *Business Research Methods* (Vol. 7th ed). Mason: Oklahoma State University.

Appendix

Regression Estimates

			Estimate	S.E.	C.R.	P	Label
TIS	<---	EP	.154	.075	2.051	.040	
TIS	<---	MC	.510	.087	5.852	***	
OTC	<---	TIS	.484	.056	8.657	***	
OTC	<---	EP	.327	.106	3.083	.002	
OTC	<---	MC	.512	.129	3.975	***	
Employee_Participation_1	<---	EP	1.000				
Employee_Participation_2	<---	EP	.997	.193	5.154	***	
Employee_Participation_3	<---	EP	1.045	.192	5.435	***	
Employee_Participation_4	<---	EP	1.085	.226	4.804	***	
Managerial_Com_Cr2	<---	MC	1.000				
Managerial_Com_Cr1	<---	MC	.703	.100	7.046	***	
Managerial_Com_C2	<---	MC	.749	.109	6.864	***	
Managerial_Com_C1	<---	MC	1.053	.120	8.744	***	
Managerial_Com_T2	<---	MC	.948	.115	8.210	***	
Managerial_Com_T1	<---	MC	1.030	.123	8.377	***	
Trust_in_Suprevisor_5	<---	TIS	1.000				
Trust_in_Suprevisor_4	<---	TIS	1.159	.166	6.962	***	
Trust_in_Suprevisor_3	<---	TIS	1.234	.180	6.861	***	
Trust_in_Suprevisor_2	<---	TIS	1.518	.199	7.631	***	
Trust_in_Suprevisor_1	<---	TIS	1.361	.184	7.408	***	
Open_1	<---	OTC	1.000				
Open_2	<---	OTC	.723	.138	5.245	***	
Open_3	<---	OTC	.805	.160	5.039	***	
Open_4	<---	OTC	1.066	.143	7.469	***	
Open_5	<---	OTC	.970	.148	6.561	***	
Open_6	<---	OTC	.892	.133	6.726	***	
Open_7	<---	OTC	.803	.140	5.746	***	

INFLUENCE OF SERVANT LEADERSHIP ON EMPLOYEES' BEHAVIORAL OUTCOMES IN CULTURES WITH HIGH POWER DISTANCE ORIENTATION

Muhammad Azeem Qureshi¹, Dr. Kazi Afaq Ahmed² and Dr. Syed Irfan Hyder³

Abstract

Inadequacies of leadership character have resulted in failure of many businesses. Servant leadership is one of the character-driven leadership models that emerged to address these inadequacies but this leadership approach is found to be less-effective in cultures with high power distance orientation. Drawing on conservation of resource theory and leader-member exchange theory, this study uses AMOS and PROCESS to perform confirmatory factor analysis and to test proposed hypotheses respectively. Results suggest that servant leadership positively influences innovative work behavior and organizational citizenship behavior. However, this study does not find any support for power distance orientation as a moderator. High religiosity is the possible cause for such finding which gives direction for future research. This study has theoretical and practical implications.

Keywords: Servant Leadership, Innovative Work Behavior, Organizational Citizenship Behavior, Power Distance Orientation.

JEL Classification: O150, L200

Introduction

Failure of well-known companies such as Enron, Tyco, WorldCom and many others in the world is associated with ethical leadership crisis, therefore emergence of value-laden leadership comes as no surprise (Sendjaya, Sarros, & Santora, 2008). Servant leadership is another addition into the existing leadership literature which addresses inadequacies of leadership character. Greenleaf (1970) originated the term “servant leadership” with the core theme of “going beyond one’s self-interest”. Research on servant leadership has been overlooked after its origination until the last decade.

¹ Department of Management & HR, Institute of Business Management (IoBM), Karachi, Pakistan.
Email: azeem.qureshi@hotmail.com

² Assistant Professor, Department of Management & HRM, IoBM, Karachi, Pakistan. Email: afaq.kazi@iobm.edu.pk

³ Professor, Institute of Business Management (IoBM), Karachi, Pakistan. Email: irfan.hyder@iobm.edu.pk

Scholars have urged to deduce servant leadership theory in different cultural context to legitimize it as a mainstream leadership model (Chiniara & Bentein, 2016).

Servant leadership literature is consistent with respect to its positive outcomes at individual and organizational level (Bobbio, Van Dierendonck, & Manganelli, 2012; Chiniara & Bentein, 2016; Donia, Raja, Panaccio, & Wang, 2016; Newman, Schwarz, Cooper, & Sendjaya, 2015; Tang, Kwan, Zhang, & Zhu, 2015). However, Social norms in Pakistan demand predominantly assertive and authoritative leadership style while people-oriented leadership style such as servant leadership seems to be counter-cultural and a substantial challenge (Ertel, 2017; Simkins, Sisum, & Memon, 2003). In addition, employees with higher power distance orientation take little care about how their leaders treat them (Lin et al., 2013). Therefore, whether leaders treat their followers positively (e.g. servant leadership) or negatively, followers are less likely to show sensitivity to such treatment (Donia et al., 2016; Lian, Ferris, & Brown, 2012). Culture in Pakistan is moderately high in terms of power distance orientation (Hofstede, 2016; Khilji, 2002) but little is known with reference to what influence servant leadership makes on employees' behavioral outcomes in such culture.

Pressure to remain competitive compels organizations to expect their employees to make extra efforts, come up with innovative ideas and make efforts in promoting and implementing these ideas (Yidong & Xinxin, 2013). Therefore, organizations seek their employees to demonstrate organizational citizenship behavior (Newman et al., 2015) and innovative work behavior (Yoshida et al., 2014). Despite different leadership approaches are found to be positively associated with these behaviors but limited literature has addressed the role of servant leadership in this respect. This research also attempts to fill this gap.

Contribution & Originality

The servant leadership theory is in its early stage and requires a deductive approach to be legitimated as a mainstream leadership theory (Mackey, Frieder, Brees, & Martinko, 2015). This study makes an attempt to test servant leadership theory in a different cultural and organizational context to endorse servant leadership construct as a mainstream leadership theory as proposed by Chiniara and Bentein (2016). Further, this study also attempts to address the call for future research proposed by Donia et al. (2016) and Newman, Schwarz, Cooper, and Sendjaya (2015) to examine how servant leadership works in different cultural contexts in order to increase generalizability (Kool & van Dierendonck, 2012). Finally, according to Hofstede (2018), it is uncertain how people of Pakistan will respond to cultural dimension of power distance, it is necessary to examine and validate the role of power distance orientation as a moderator which can dilutes the influence of leadership on different employee-related outcomes. This study makes an attempt to contribute in this respect by examining whether power distance orientation moderates the influence of servant leadership such that the

influence of servant leadership is attenuated.

Research Objectives

This research aims to assess the influence of servant leadership practice on followers' behavioral outcomes, namely innovative work behavior and organizational citizenship under the moderating influence of power distance orientation.

Literature Review

Servant Leadership

Servant leadership is described as a way of life and not a management technique (Greenleaf, 1977; Greenleaf & Spears, 1998). Servant leaders are those who give value to their subordinates, develop them (Laub, 1999), show concern for their subordinates (Ehrhart, 2004) and with humble attitude (Van Dierendonck, 2011), they are ambitious to serve others (Sendjaya, Sarros, & Santora, 2008). Servant leaders invest great deal of energy and time to understand career goals, interest and capabilities of their followers (Greenleaf & Spears, 1998). Since serving the followers is the supreme priority of servant leaders, they craft an environment that provides opportunities for enhancing followers' present skills and growing new ones (Liden, Wayne, Zhao, & Henderson, 2008). This serving attitude makes servant leaders role model to their followers (Babakus, Yavas, & Ashill, 2010). Servant leaders empower their follower to grow to what they are capable to be through engaging them relationally, emotionally, ethically and spiritually (Eva, Robin, Sendjaya, Dierendonck, & Liden, 2018).

Servant leadership is not only an ethical theory but also an action-driven leadership approach where service-driven behavior and action-driven behavior of servant leader co-exist and complement each other (Sousa & van Dierendonck, 2017). It is evident that servant leaders, through their serving behavior, gain trust from their subordinates which results in positive employee outcomes (Chan & Mak, 2014). Furthermore, servant leaders foster positive employee and organizational outcome better than any other type of leadership style (Schneider & George, 2011).

Innovative Work Behavior (IWB)

De Jong (2006) defined IWB as a behavior related to creation, promotion and implementation of novel ideas at workplace. There exists a significant relationship between leadership and innovative work behavior (Dzulkfli, 2014). Studies investigated leadership influence on innovative work behavior are consistent with respect to leadership and its positive association with innovative work behavior (Černe, Jaklič, & Škerlavaj, 2013; Dhar, 2016; Imran & Anis-ul-Haque, 2011; Kamaruddin, Adi, Nazir, Arif, & others, 2015). Servant leadership appears to be a better predictor of

innovative work behavior than any other leadership style as servant leaders satisfy the needs of autonomy of their followers. Empowering followers and liberating them to handle difficult situations, learning from mistakes, encouraging followers to be creative, making decisions on their own and providing followers supporting environment to exercise their full potential, are the some of the key function servant leaders perform (Liden et al., 2008).

Organizational Citizenship Behavior (OCB)

OCB is defined as an individual's discretionary behavior which an employee shows by going beyond his/her job description and seek task which are not rewarded by formal reward system (Organ, 1988). OCB is often discretionary and not endorsed by the official reward system (Liden, Panaccio, Meuser, Hu, & Wayne, 2014). A competitive business environment entails ample involvement and discretionary efforts from employee to maintain a competitive edge. Therefore, the role of organizational citizenship behavior has become more important (Detert & Burris, 2007).

Research has suggested that servant leaders inspire their followers through their serving behavior which motivates them to exhibit OCB (Reed, 2015). Followers are more likely to produce various extra-role behaviors when servant leaders put their prime focus on their need fulfillment (Marinova & Park, 2014). A recent study has also identified positive association between servant leadership and OCB (Linuesa-Langreo, Ruiz-Palomino, & Elche-Hortelano, 2018).

Power Distance Orientation (PDO)

PDO is a cultural value (Hofstede, 1980; Lin et al., 2013; Lowe, 2006) which refers to degree to which people believe and legitimize the hierarchical difference between those who possess power and those who do not (Hofstede & Minkov, 1991). The employees with high power distance orientation are less sensitive to social exchange norms (Farh, Hackett, & Liang, 2007). Therefore, irrespective of how leaders treat their followers, followers are less likely to show sensitivity to such treatment in power distance culture (Lian, Ferris, & Brown, 2012). Impact of leadership is inconsistent in power distance cultures (Donia et al., 2016). PDO has been found to be a moderator in several studies. For instance, the mean level of servant leadership was less in Italy than in UK and Netherland (Bobbio et al., 2012) as the power distance orientation in Italy is more than UK and Netherland (House, 2004). Similarly, Morris, Brotheridge, and Urbanski (2005) suggested that virtue-based leadership might be less-effective in male-dominant societies as compared to female-dominant societies. A recent study conducted by Ahmad and Gao (2018) found support to the premise that power distance orientation is more related to leadership practices than any other cultural values in making the impact of leadership less effective when power distance orientation is high.

Theoretical Framework

This study draws on *Conservation of Resource Theory* which postulates that individuals try to retain and protect resources necessary to fulfill the needs of their daily lives. These resources include physical, social and psychological resources (Hobfoll, 1989). Servant leaders protect these resources by treating individuals as a valuable organizational resource, growing them, developing them and by taking care of their well-being (Gregory Stone, Russell, & Patterson, 2004). This creates a sense of security and safety (Cooper & Thatcher, 2010) and these acts of servant leaders fulfill the physical, social and psychological needs of subordinates (Aryee et al., 2007). Such perception of needs fulfillment and sense of security and safety results in bringing about abundance mentality (Covey, 2014) and consequently helps employees in exhibiting innovative work behavior by originating, promoting and implementing innovative ideas.

This study further draws on *Leader-Member Exchange Theory (LMX)* which proposes that followers maintain equitable social-exchange by reciprocating the treatment they received from their leaders (Blau, 1964; Dienesch & Liden, 1986). This theory provides the exchange mechanism through which leadership practices are reciprocated, therefore it is contended that subordinates try to reciprocate serving behavior of their leaders by demonstrating organizational citizenship behavior. The following conceptual frame and statements of hypotheses have been developed on the basis of profuse literature and the proposed theoretical framework.

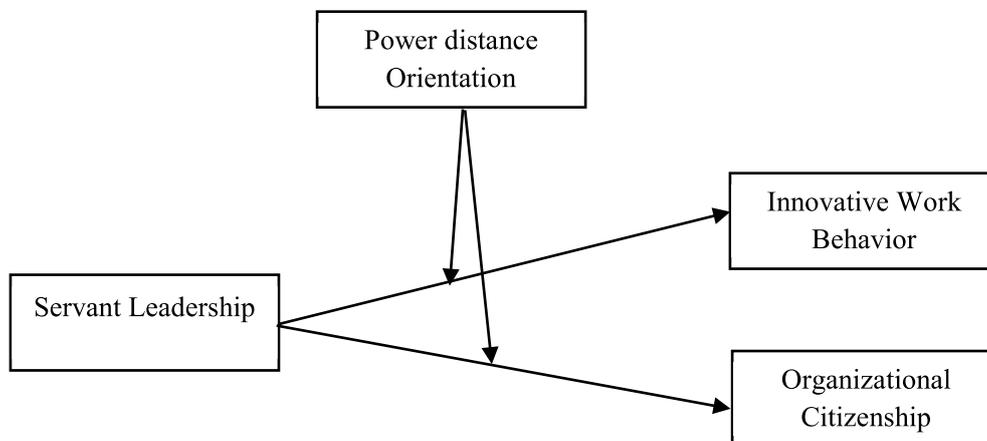


Figure 1: Research Model

Statements of hypotheses

H1: Servant leadership positively influences innovative work behavior.

H2: Servant leadership positively influences organizational citizenship behavior.

H3: Power distance orientation moderates the influence of servant leadership on innovative work behavior and organizational citizenship behavior such that the influence of servant leadership is attenuated.

Research Methodology

This study is based on positivist research paradigm which proposes that reality can be attained through observation and experimentation (Henn et al., 2009). Since this study aims to investigate the cause-effect relationship to predict behavioral outcomes in response to leadership behavior, the most appropriate research design for causal research is quantitative research design (Creswell, 2013). The positivist research paradigm also support a researcher uses quantitative method to test hypotheses.

Questionnaire Development

The questionnaire for this study is based on the instruments adopted from widely used and published measurement scales in the field of organizational research. All the scales have appropriate reliability Cronbach's alpha scores. All the items in questionnaire addressing each variable in the conceptual framework have been measured on a 5-point Likert scale. *Servant Leadership* has been measured through 8-items developed by (Liden et al., 2014) with (α) was .84. Innovative work behavior has been measured through 6-items proposed by Hu, Horng, and Sun (2009) with initial reliability (α) = .91. *OCB* has been measured through the scale proposed by Lee and Allen (2002) with α =.83. While Power distance orientation has been measured through eight items proposed by Earley & Erez (1997) with initial reliability of .81.

Sampling

This study uses purposive sampling, a non-probability sampling technique to gather data from respondents. There are a large number of unregistered organizations in Pakistan which carry out economic activities outside the official reporting system and are beyond the tax net except for the large corporates (Wajeel, 2017). Most of the small units producing goods and services both from rural and urban areas of Pakistan are undocumented in government statistics and contribute about 71 percent of GDP (Khan & Khalil, 2017). Therefore, it is almost impossible to draw a sample on the basis of probability. However, the issue of generalizability is associated with all non-probability sampling techniques, purposive sampling is common in academic research which is subject to time and resource constraints (Cohen, Manion, & Morrison, 2013). Further, this research gathers dyadic data to avoid common method bias.

A sample of minimum 200 respondent has been suggested as appropriate for factor analysis

(Thompson, 2004) while Hair, Black, Babin, and Anderson (2010) have suggested a sample of more than 200 respondents is adequate for structural equation modeling. Following this approach, this study uses a sample of 474 respondents to increase generalizability of the study.

Data Analysis Methods

Normality, Validity and Reliability

Normality of the data has been ascertained through Skewness and Kurtosis. Normality of data is confirmed if the values of Skewness and Kurtosis range between ± 2.5 and sig. value $< .05$ (Hair, 2010). It is necessary to assess measuring instruments' construct validity when instruments have been developed in different cultural context. Since all the constructs which we have used in this research have been developed in the western context, therefore it is necessary to ascertain construct validity of instruments used in this study. Construct validity can be ascertained through discriminant validity and convergent validity (Bryman & Bell, 2015). This study follows method recommended by Hair, Black, Babin, & Anderson (2010) which assess the discriminant validity and convergent validity through Composite Reliability (*CR*), Average Variance Extracted (*AVE*) and Maximum Shared Squared Variance (*MSV*). This method follows the cut-off criteria recommended by Hu & Bentler (1999) which suggests $CR > 0.7$, $AVE > 0.5$ and $CR > AVE$ are necessary to establish convergent validity. While discriminant validity is established when $AVE > MSV$ and the square root of *AVE* is greater than each pair of correlation for all the constructs. Further, Composite reliability has been measured to confirm internal consistency of data (Peterson & Kim, 2013).

Confirmatory Factor Analysis

This study performs Confirmatory Factor Analysis (CFA) to determine goodness of model fit (Hair, 2010). Fit indices used in this study are Chi Square (χ^2), Chi Square/ Degree of Freedom ratio ($\chi^2/d.f.$), Significance (p), Standardized Root Mean Square Residual (SRMR) and Root Mean Square Error of Approximation (RMSEA) for absolute fit indices. Further, for incremental fit indices, this study uses Incremental Fit Index (IFI), Comparative Fit Index (CFI), Tucker Lewis Index (TLI) which is also known as Non-Normed Fit Index (NNFI). The summary of the cut-off values of model-fit indices used for this study are given in Table 1.

Table 1
Classification of Fit Measures

Fit Measure					
Absolute Fit Indices		Relative Fit Indices		Parsimony Fit Indices	
Test	Criteria	Test	Criteria	Test	Criteria
χ^2	$P > .05$	<i>CFI</i>	$\geq .95$	<i>PNFI</i>	$< .5$
χ^2/df	≤ 3.0	<i>TLI</i>	$\geq .95$	<i>PCFI</i>	$< .5$
<i>SRMR</i>	$< .05$				
<i>RMSEA</i>	$< .05$				

Hypotheses Testing

This study uses SPSS macro PROCESS (Hayes, 2013) to test hypotheses, measurement of moderating effect and interaction term. Independent variable and moderator were mean-centered before analysis by subtracting means from their values (Aiken, West, & Reno, 1991; Hayes, 2013). This research draws separate interaction plots to estimate slopes describing the relationship between SL, IWB and OCB at varying level of power distance orientation. The interaction terms have been calculated by the tool *Interaction 1.7* developed by Soper (2013).

Results

Respondents' Profile

The age of the respondents falls between 20 to 58 years ($M = 32$, $SD = 8.24$) while there were 320 male and 154 female respondents. 378 respondents were married while 96 were unmarried. Tenure of respondents varies from 2 years to 25 years ($M = 4.6$, $SD = 5.6$) within the same organization. Among the respondents, 90 (19%) were leaders while 384 (81%) were followers.

Descriptive Statistics

Following Table 2 represents descriptive statistics and normality of data through Skewness and Kurtosis.

Table 2
Descriptive Statistics

	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Servant Leadership	3.54	.93	-.78	-.06
Power Distance Orientation	3.68	.71	-1.54	2.08
Innovative Work Behavior	3.64	.83	-1.21	.59
Organizational Citizenship Behavior	3.52	.84	-.95	.04

Since values of Skewness and Kurtosis of all the constructs fall within the acceptable range of ± 2.5 (Hair, 2010). It can be concluded that the data set used for this study fulfills the requirement of normality.

Construct Validity

Construct validity has been measured through discriminant validity and convergent validity (Bryman & Bell, 2015). This research follows the cut-off criteria recommended by Hu and Bentler (1999). Table 3 below presents the results of construct validity.

Table 3
Construct Validity

	CR	AVE	MSV	MaxR(H)	SL	IWB	PDO	OCB
SL	0.903	0.571	0.445	0.907	0.755			
IWB	0.872	0.534	0.146	0.879	0.329***	0.731		
PDO	0.900	0.529	0.003	0.901	-0.058	-0.040	0.727	
OCB	0.928	0.501	0.445	0.943	0.667***	0.382***	-0.006	0.697

Significance of Correlations: † $p < .100$, * $p < .050$, ** $p < .010$, *** $p < .001$

Results of Table 3 above show that Composite Reliability (CR) of all constructs is greater than .7. Average Variance Extracted (AVE) of all the constructs is greater than .5 $CR > AVE$, therefore it can be said that all the requirements of convergent validity are fulfilled. Since AVE is greater than MSV and Square Root of all the constructs is greater than the correlation of each pair of their corresponding constructs, discriminant validity is said to be confirmed.

Confirmatory Factor Analysis

Before making any attempt to evaluate the structural model, it is necessary to analyze full latent variable models through assessing the validity of the measurement model (Byrne, 2016). Figure 2 below illustrates the parameters of the measurement.

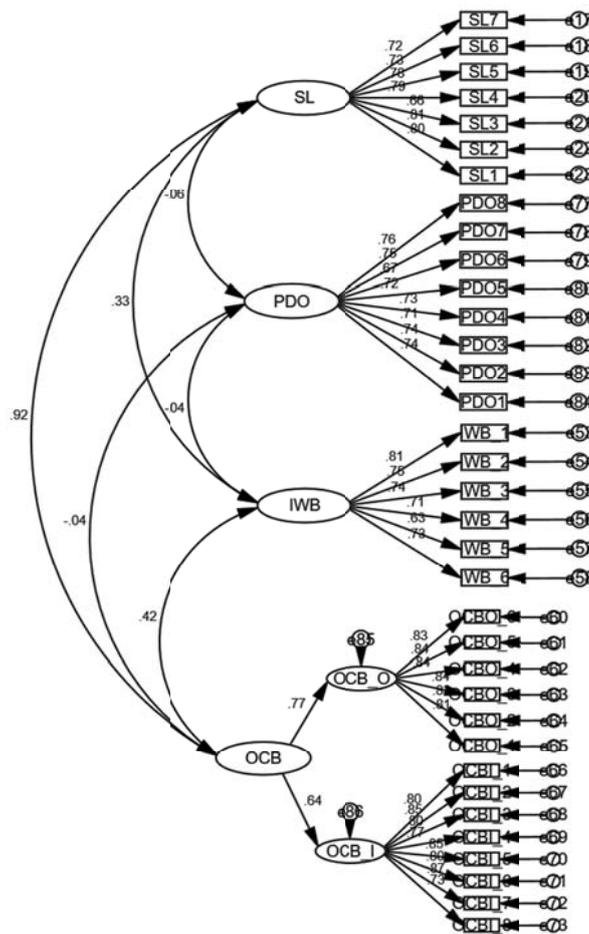


Figure 2: CFA for Second-Order Measurement Model

All the fit indices of the measurement model are within the acceptable range as presented in Table 4 below.

Table 4
Goodness of Fit Indices for the Measurement Model

Absolute Fit Indices				Relative Fit Index			Parsimony Index		
χ^2	df	p	χ^2/df	SRMR	RMSEA	CFI	TLI	PNFI	PCFI
871.42	552	.000	1.58	.04	.035	.97	.97	.90	.85

Following the CFA of the measurement model, CFA for structural model was performed to ascertain how well the proposed model fits that data. Figure 3 below shows details of structural model's parameters.

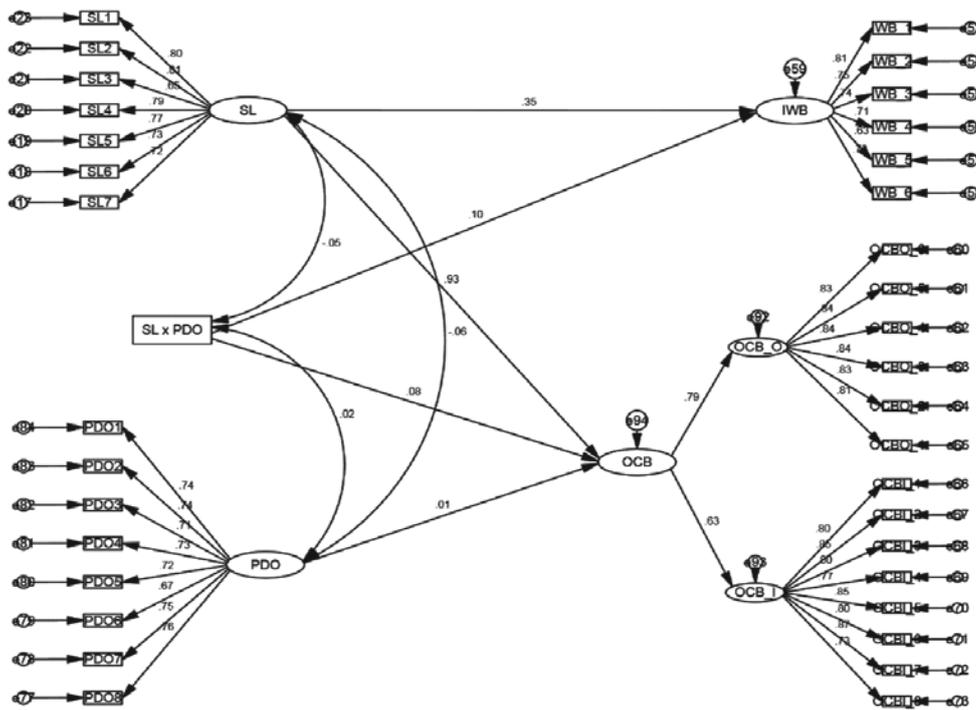


Figure 3: CFA for Structural Model

The Chi-Square statistic $\chi^2 (586) = 920.18, p < .05$ which is consistent with results of

second-order CFA, indicating an inadequate goodness-of-fit. Since Chi-Square (χ^2) is sensitive to sample size and significant in most of the cases (Iacobucci, 2010) even with a reasonable sample size (Hair, Black, Babin, & Anderson, 2014). Experts have recommended reporting Normed Chi-Square or Relative Chi-Square (χ^2/df) statistic in order to address Chi Square statistic's deficiency (Hooper, Coughlan, & Mullen, 2008). The value of χ^2/df is 1.57 which is less than 3.0 and suggesting good-fit (Kline, 2015).

In addition to χ^2 and χ^2/df results, the value of *SRMR*, another absolute fit index, is .04. The value closer to 1 indicates a perfectly fitting model (Hoyle, 2012). Using the 90% confidence interval, the value of *RMSEA* is .03 which is below .05 and closer to .00, therefore indicating well-fitted model (Weston & Gore, 2006).

Moving to the incremental fit indices, the recommended values ≥ 0.95 for *CFI* and *TLI* suggest excellent-fit (Hooper et al., 2008). *CFI* and *TLI* are comparatively not affected by sample size (Pituch & Stevens, 2015). The value of both *CFI* and *TLI* are .96 indicating good-fit. While the *PNFI* and *PCFI* demonstrate a comparatively better fit than the second-order *CFA* with the values of .85 for *PNFI* and .90 for *PCFI*. Since the values closer to 1.0 represent good-fit for *PNFI* and *PCFI* (Lomax & Schumacker, 2012), it can be assumed that the model indicates a reasonable-fit for these indices.

Results of Hypotheses Testing

In the light of the theoretical framework, it was hypothesized that servant leadership positively affects innovative work behavior and OCB while power distance moderates the effect of servant leadership. Therefore, this research attempts to test this hypothesis by taking (SL) as a predictor, Power distance Orientation (PDO) as moderator and innovative work behavior (IWB) and organizational citizenship behavior (OCB) as outcome variable. Table 4 below presents the summary of results.

Table 5
Summarized Result of Moderation Analysis

Predictor	DV = IWB	DV = OCB
	<i>b</i>	<i>b</i>
Constant	3.64***	3.53***
Servant leadership (SL)	.26***	.62***
Power distance orientation (PDO)	-.03 ⁺	.02 ⁺
SL x PDO	.12 ⁺	.08 ⁺
R ² Change	0.1 ⁺	.00 ⁺

N = 474, Confidence level = 95% for 10000 bias corrected bootstrap samples, ****p* < .001, ***p* < .01, **p* < .05, ⁺*p* > .05

Table 5 shows that the influence of SL on IWB is positive and significant ($b = .26, p < .001$) while the influence of SL on OCB is also positive and significant ($b = .62, p < .05$). However, the interaction between SL and PDO is insignificant for IWB ($b = .12, p > .05$) and OCB ($b = .12, p > .05$). To better understand the moderating effect of power distance orientation, the plot of interaction at two levels of power distance orientation (1 SD below the mean and 1 SD above the mean) has been described in Figure 4. The interaction pattern presented in Figure 3 shows that there is little or ignorable difference in IWB by servant leadership for individuals with power distance orientation (1 SD above the mean) and individuals with low power distance orientation (1 SD below the mean). Similarly, the interaction pattern between SL and OCB at different levels of PDO is insignificant and ignorable. These results support H₁ and H₂ while there is no support for H₂.

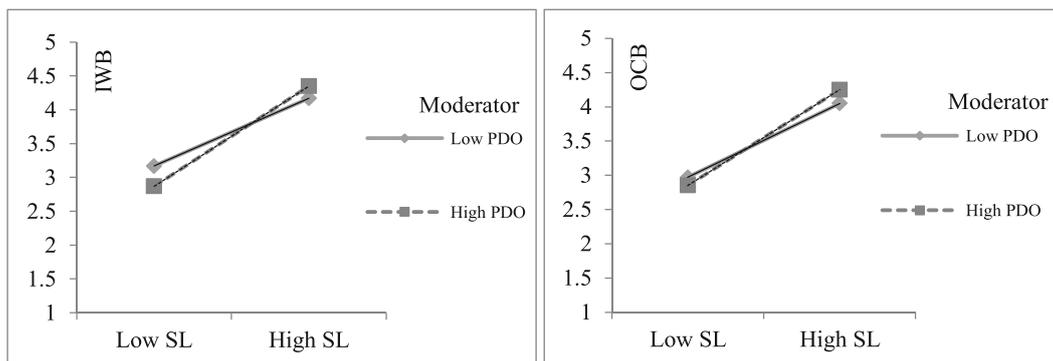


Figure 4: Interactive effect of SL and PDO on IWB and OCB

Discussion and Conclusion

Findings of this study support Greenleaf's premise that servant leadership impact individuals and organization through its focus on serving others. This study supports the role of conservation of resource theory in predicting innovative work behavior suggesting that servant leaders provide their followers the experience of resourcefulness which ultimately leads employees to demonstrate innovative work behavior. Further, servant leader's tendency to tolerate mistakes and failures of their follower also supports employees to demonstrate innovative work behavior as described by Kamaruddin et al. (2015). This research also supports leader-member exchange theory in transmitting the influence of servant leadership on employees demonstrating organizational citizenship behavior that people maintain the norm of reciprocity even in culture with high power distance orientation. Therefore, this study finds support for H₁ and H₂. Further, these findings are in support of the global expansion of servant leadership practices irrespective of Western or Eastern context (Ertel, 2017). Contrary to expectations, the power distance orientation did not moderate the proposed relationship (H₃). Since, high religiosity affects power distance orientation of society (Mathew Sagi, 2019), therefore, the possible reason for servant leadership dominance and ineffective moderation of power distance is apparently the religious orientation of Pakistani society (Hassan, 1987). Since the idea of servant leadership has its roots in religion (Davis & Winn, 2017) and religion is an essential component of social reality and plays an important role in shaping societies, the integration between religion and leadership practices cannot be ignored (Gümüşay, 2019). Therefore, many similarities can be observed between servant leadership practices and religious teachings. However, empirical evidence is required to support this claim. This finding opens endeavors for future research.

Theoretical and Practical Implications

This study implies that servant leadership is an effective leadership approach irrespective of the cultural context and geographic location. Servant leadership functions even under moderate power distance culture where the influence of different leadership practices is attenuated. This study can help the business community in the development of a practical manual to implement servant leadership practices in organizations. This study can also help managers for developing strategies to incorporate servant leadership behavior in their organizations.

Limitations & Future Research

Since the data set used for this research is cross-sectional, no absolute claim can be made with reference to its findings. The longitudinal study in future can help to strengthen the findings of this research. More research on possible moderation of religious orientation in cultures with high or lower power distance orientation can provide great insight with regards to its impact on leadership practices, particularly on character-driven leadership approaches. This can provide empirical support

to this premise that religious orientation can undermine other cultural moderators such as power distance orientation.

References

- Ahmad, I., & Gao, Y. (2018). Ethical leadership and work engagement: The roles of psychological empowerment and power distance orientation. *Management Decision*, 56(9), 1991–2005.
- Aiken, L. S., West, S. G., & Reno, R. R. (1991). *Multiple regression: Testing and interpreting interactions*.
- Aryee, S., Chen, Z. X., Sun, L.-Y., & Debrah, Y. A. (2007). Antecedents and outcomes of abusive supervision: Test of a trickle-down model. *Journal of Applied Psychology*, 92(1), 191.
- Babakus, E., Yavas, U., & Ashill, N. J. (2010). Service worker burnout and turnover intentions: Roles of person-job fit, servant leadership, and customer orientation. *Services Marketing Quarterly*, 32(1), 17–31.
- Blau, P. (1964). Power and exchange in social life. NY: John Wiley & Sons.
- Bobbio, A., Van Dierendonck, D., & Manganelli, A. M. (2012). Servant leadership in Italy and its relation to organizational variables. *Leadership*, 8(3), 229–243.
- Bryman, A., & Bell, E. (2015). Business Research Methods (Vol fourth). Glasgow: Bell & Bain Ltd.
- Byrne, B. M. (2016). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Routledge.
- Cerit, Y. (2009). The effects of servant leadership behaviours of school principals on teachers' job satisfaction. *Educational Management Administration & Leadership*, 37(5), 600–623.
- CH Chan, S., & Mak, W. (2014). The impact of servant leadership and subordinates' organizational tenure on trust in leader and attitudes. *Personnel Review*, 43(2), 272–287.
- Chiniara, M., & Bentein, K. (2016). Linking servant leadership to individual performance: Differentiating the mediating role of autonomy, competence and relatedness need satisfaction. *The Leadership Quarterly*, 27(1), 124–141.
- Cohen, L., Manion, L., & Morrison, K. (2013). Action research. In *Research methods in education* (pp. 368-385). Routledge.
- Cooper, D., & Thatcher, S. M. (2010). Identification in organizations: The role of self-concept orientations and identification motives. *Academy of Management Review*, 35(4), 516–538.
- Covey, S. R. (2014). *The 7 habits of highly effective families*. St. Martin's Press.
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Davis, M. K., & Winn, J. (2017). Islamic Leadership Models: Lessons from Early Islam. In *Entrepreneurship and Management in an Islamic Context* (pp. 19–31). Springer.
- Detert, J. R., & Burris, E. R. (2007). Leadership behavior and employee voice: Is the door really open? *Academy of Management Journal*, 50(4), 869–884.
- Dienesch, R. M., & Liden, R. C. (1986). Leader-member exchange model of leadership: A critique and further development. *Academy of Management Review*, 11(3), 618–634. Dimension data

- matrix. (2016, June 14). Retrieved October 15, 2016, from Geert Hofstede website: <http://geerthofstede.com/research-and-vsm/dimension-data-matrix/>
- Donia, M. B., Raja, U., Panaccio, A., & Wang, Z. (2016). Servant leadership and employee outcomes: The moderating role of subordinates' motives. *European Journal of Work and Organizational Psychology, 25*(5), 722-734.
- Earley, P. C., & Erez, M. (1997). *The transplanted executive: Why you need to understand how workers in other countries see the world differently*. Oxford University Press.
- Ehrhart, M. G. (2004). Leadership and procedural justice climate as antecedents of unit-level organizational citizenship behavior. *Personnel Psychology, 57*(1), 61-94.
- Ertel, S. R. (2017). Why Servant Leadership? *Servant Leadership: Theory & Practice, 4*(2), 13-26.
- Eva, N., Robin, M., Sendjaya, S., van Dierendonck, D., & Liden, R. C. (2019). Servant leadership: A systematic review and call for future research. *The Leadership Quarterly, 30*(1), 111-132.
- Farh, J.-L., Hackett, R. D., & Liang, J. (2007). Individual-level cultural values as moderators of perceived organizational support-employee outcome relationships in China: Comparing the effects of power distance and traditionality. *Academy of Management Journal, 50*(3), 715-729.
- Greenleaf, R. K. (1970). The Servant as Leader, The Robert K. Greenleaf Center, Indianapolis, IN.
- Greenleaf, R. K. (1977). *Servant leadership*. Retrieved from <http://www.american.edu/spa/leadership/application/upload/Greenleaf,%20Servant%20Leadership.pdf>
- Greenleaf, R. K., & Spears, L. C. (1998). *The power of servant-leadership: Essays*.
- Greenleaf, R. K. (1998). *The power of servant-leadership: Essays*. Berrett-Koehler Publishers.
- Gregory Stone, A., Russell, R. F., & Patterson, K. (2004). Transformational versus servant leadership: A difference in leader focus. *Leadership & Organization Development Journal, 25*(4), 349-361.
- Gümüşay, A. A. (2019). Embracing religions in moral theories of leadership. *Academy of Management Perspectives, 33*(3), 292-306.
- Hair, J. F. (2010). *Multivariate data analysis*. Pearson College Division.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective*. Retrieved from <http://library.wur.nl/WebQuery/clc/1924429>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). Pearson New International Edition.
- Hassan, R. (1987). Religion, Society, and the State in Pakistan: Pirs and Politics. *Asian Survey, 27*(5), 552-565.
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.
- Henn, M., Weinstein, M., & Foard, N. (2009). *A critical introduction to social research*. Sage Publications.
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American psychologist, 44*(3), 513.
- Hofstede, G. (1980). Motivation, leadership, and organization: Do American theories apply abroad? *Organizational Dynamics, 9*(1), 42-63.

- Hofstede, G., Hofstede, G. J., & Minkov, M. (1991). Cultures and organizations: Intercultural cooperation and its importance for survival. *Software of the Mind London: McGraw-Hill*.
- Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. *Articles*, 2.
- Hoyle, R. H. (2012). *Handbook of structural equation modeling*. Guilford press.
- Hu, J., & Liden, R. C. (2011). Antecedents of team potency and team effectiveness: An examination of goal and process clarity and servant leadership. *Journal of Applied Psychology*, 96(4), 851.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55.
- Hu, M.-L. M., Horng, J.-S., & Sun, Y.-H. C. (2009). Hospitality teams: Knowledge sharing and service innovation performance. *Tourism Management*, 30(1), 41–50.
- Iacobucci, D. (2010). Structural equations modeling: Fit indices, sample size, and advanced topics. *Journal of Consumer Psychology*, 20(1), 90–98.
- Kamaruddin, N. K., Adi, M., Nazir, M., Arif, N., & others. (2015). *Transformational leadership towards encouraging innovative workforce behavior among enterprise so award companies* (Universiti Tun Hussein Onn Malaysia). Retrieved from <http://eprints.uthm.edu.my/7968/>
- Khan, A., & Khalil, S. (2017). The real size of underground economy: A case of Pakistan. *Pakistan Journal of Applied Economics*, 27(1), 89–100.
- Khilji, E. (2002). Modes of convergence and divergence: An integrative view of multinational practices in Pakistan. *International Journal of Human Resource Management*, 13(2), 232–253.
- Kline, R. (2015). *Principles and practice of structural equation modeling*. Guilford publications.
- Kool, M., & van Dierendonck, D. (2012). Servant leadership and commitment to change, the mediating role of justice and optimism. *Journal of Organizational Change Management*, 25(3), 422–433.
- Laub, J. (1999). *Assessing the servant organization: Development of the servant organizational leadership assessment (SOLA) instrument*. Retrieved December 12, 2006.
- Lee, K., & Allen, N. J. (2002). Organizational citizenship behavior and workplace deviance: The role of affect and cognitions. *Journal of Applied Psychology*, 87(1), 131.
- Lian, H., Ferris, D. L., & Brown, D. J. (2012). Does power distance exacerbate or mitigate the effects of abusive supervision? It depends on the outcome. *Journal of Applied Psychology*, 97(1), 107.
- Liden, R. C., Panaccio, A., Meuser, J. D., Hu, J., & Wayne, S. J. (2014). 17 Servant Leadership: Antecedents, Processes, and Outcomes. *The Oxford Handbook of Leadership and Organizations*, 357–379.
- Liden, R. C., Wayne, S. J., Liao, C., & Meuser, J. D. (2014). Servant leadership and serving culture: Influence on individual and unit performance. *Academy of Management Journal*, 57(5), 1434–1452.
- Liden, R. C., Wayne, S. J., Zhao, H., & Henderson, D. (2008). Servant leadership: Development of a multidimensional measure and multi-level assessment. *The Leadership Quarterly*, 19(2),

161–177.

- Lin, W., Wang, L., & Chen, S. (2013). Abusive supervision and employee well-being: The moderating effect of power distance orientation. *Applied Psychology, 62*(2), 308–329.
- Linuesa-Langreo, J., Ruiz-Palomino, P., & Elche-Hortelano, D. (2018). Integrating Servant Leadership into Managerial Strategy to Build Group Social Capital: The Mediating Role of Group Citizenship Behavior. *Journal of Business Ethics, 152*(4), 899–916.
- Lomax, R. G., & Schumacker, R. E. (2012). *A beginner's guide to structural equation modeling*. Routledge Academic New York, NY.
- Lowe, K. B. (2006). *A quarter century of Culture's Consequences: A review of the empirical research incorporating Hofstede's cultural value framework*.
- Mackey, J. D., Frieder, R. E., Brees, J. R., & Martinko, M. J. (2017). Abusive supervision: A meta-analysis and empirical review. *Journal of Management, 43*(6), 1940–1965.
- Marinova, S. V., & Park, H. S. (2014). Does It Matter if Leadership is About Us? A Meta-Analysis of Other-Oriented Leadership. In *Academy of Management Proceedings* (Vol. 2014, No. 1, p. 14212). Briarcliff Manor, NY 10510: Academy of Management.
- Mathew, S., & Taylor, G. (2019). Power distance in India: Paternalism, religion and caste: some issues surrounding the implementation of lean production techniques. *Cross Cultural & Strategic Management, 26*(1), 2-23.
- Morris, J. A., Brotheridge, C. M., & Urbanski, J. C. (2005). Bringing humility to leadership: Antecedents and consequences of leader humility. *Human Relations, 58*(10), 1323–1350.
- Newman, A., Schwarz, G., Cooper, B., & Sendjaya, S. (2017). How servant leadership influences organizational citizenship behavior: The roles of LMX, empowerment, and proactive personality. *Journal of Business Ethics, 145*(1), 49-62.
- Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome*. Retrieved from <http://doi.apa.org/psycinfo/1988-97376-000>
- Peterson, R. A., & Kim, Y. (2013). On the relationship between coefficient alpha and composite reliability. *Journal of Applied Psychology, 98*(1), 194.
- Pituch, K. A., & Stevens, J. P. (2015). *Applied multivariate statistics for the social sciences: Analyses with SAS and IBM's SPSS*. Routledge.
- Read, J., & Dillon, J. (Eds.). (2013). *Models of madness: Psychological, social and biological approaches to psychosis*. Routledge.
- Reed, L. (2015). Servant leadership, followership, and organizational citizenship behaviors in 9-1-1 emergency communications centers: Implications of a national study. *Servant Leadership Theory and Practice, 2*(1), 71–94.
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online, 8*(2), 23–74.
- Schneider, S. K., & George, W. M. (2011). Servant leadership versus transformational leadership in voluntary service organizations. *Leadership & Organization Development Journal, 32*(1), 60–77.

- Sendjaya, S., Sarros, J. C., & Santora, J. C. (2008). Defining and measuring servant leadership behaviour in organizations. *Journal of Management Studies*, 45(2), 402–424.
- Simkins, T., Sisum, C., & Memon, M. (2003). School leadership in Pakistan: Exploring the head teacher's role. *School Effectiveness and School Improvement*, 14(3), 275–291.
- Soper, D. S. (2013). Sobel test calculator for the significance of mediation. *Opgehaald op*, 7(1), 2013.
- Tang, G., Kwan, H. K., Zhang, D., & Zhu, Z. (2016). Work–family effects of servant leadership: The roles of emotional exhaustion and personal learning. *Journal of Business Ethics*, 137(2), 285–297.
- Thompson, B. (2004). *Exploratory and confirmatory factor analysis: Understanding concepts and applications*. American Psychological Association.
- Van Dierendonck, D. (2011). Servant leadership: A review and synthesis. *Journal of Management*, 37(4), 1228–1261.
- Wajeed, A. (2017). *The Real Size of Pakistan Economy?* National Bank of Pakistan.
- Weston, R., & Gore, P. A. (2006). A brief guide to structural equation modeling. *The Counseling Psychologist*, 34(5), 719–751.
- Wu, L.-Z., Tse, E. C.-Y., Fu, P., Kwan, H. K., & Liu, J. (2013). The impact of servant leadership on hotel employees' "servant behavior." *Cornell Hospitality Quarterly*, 54(4), 383–395.
- Yidong, T., & Xinxin, L. (2013). How ethical leadership influence employees' innovative work behavior: A perspective of intrinsic motivation. *Journal of Business Ethics*, 116(2), 441–455.
- Yoshida, D. T., Sendjaya, S., Hirst, G., & Cooper, B. (2014). Does servant leadership foster creativity and innovation? A multi-level mediation study of identification and prototypicality. *Journal of Business Research*, 67(7), 1395–1404.

EFFECT OF QMS ON INNOVATION AND FINANCIAL PERFORMANCE A DEVELOPING COUNTRY PERSPECTIVE

Faryal Jalil¹, Dr. M. Shafiq² and Dr. Wasim ul Rehman³

Abstract

This paper aims to examine empirically the influence of QMS implementation on financial performance via innovation in the manufacturing organizations of Pakistan. A questionnaire was developed to collect the data from manufacturing organization. The Structure Equation Modeling (SEM) was used to examine the hypotheses. The findings suggest that QMS implementation has a significant and positive role in improving innovation and financial performance of the manufacturing organizations. Furthermore, it was revealed that the type and size of the (ISO certified) organization did not influence the organizations' innovation and financial performance. These results provide support to the policy makers and top management of the organizations to implement QMS in order to achieve higher operational performance.

Keywords : QMS, Innovation, Financial Performance, Manufacturing Organizations.

JEL Classification: E600

Introduction

ISO 9001 is widely accepted quality standard to maintain Quality Management System (QMS) of the organizations. Prior research suggests that QMS (ISO 9001) adopted by organizations to improve performance of the organization. However, the critics of ISO 9001 argues that this it is too bureaucratic in nature and suppress the creativity in the organizations. For example, Kaziliūnas (2010)

¹ PhD Scholar, Institute of Quality and Technology Management, University of the Punjab, Lahore, Pakistan.
Email: faryal.iqtm@pu.edu.pk

² Professor, Institute of Quality and Technology Management, University of the Punjab, Lahore, Pakistan.
Email: shafiq.iqtm@pu.edu.pk

³ Assistant Professor, Department of Business Administration, University of Punjab, Gujranwala Campus, Gujranwala, Pakistan. Email: wasimulrehman@yahoo.com

stated that ISO 9001 is not a flexible quality as it more emphasize on issues related to production process rather than encouraging the innovation and learning activities in the organizations. Similarly, Gotzamani and Tsiotras (2002) stated that standards force organizations to drive away from quality theories and emphasize standardization over customer satisfaction, innovation and improvement. Further Guasch et al. (2007) supported that the ISO 9001 standard specified the characteristic of products and limits the innovation activities in organization Contrary to this view point, previous literature also supported the positive association between QMS (ISO 9001) and innovation (Hoyle, 2009; Pekovic, 2010; Vynaryk & Hanley, 2015; Pivka & Mulej, 2004). For example, Hoyle (2009) stated that the implementation of QMS (ISO 9001) does not create barrier to creativity and innovation activities in the organizations. In addition to this Pivka and Mulej (2004) found that the audits of quality standard help to bring improvements in innovations and inventions in the organization. In addition, previous literature negated the positive and direct correlation between QMS and financial performance (Sun, 2000; Kampouridis et al., 2015). However, rare studies claimed indirect influence of QMS (Kafetzopoulos et al., 2015; Islam et al., 2015; Han et al., 2007). On the other hand, many studies also supported the direct influence of QMS on financial performance (Sharma, 2005).

Our study positively contributes in existing literature in multi-facet ways. First, our study answers the call for additional research on the correlation between QMS(ISO 9001) standard and innovation (Manders et al., 2016; Neyestani & Juanzon, 2017) as the researchers highlight that there is not only a lack of studies on association between QMS and innovation and have also mixed findings. Like, Manders et al. (2016) discovered that many large organizations acquire ISO 9001 to improve product innovation. However, the literature fails to provide clarity whether this standard foster or hinders product innovation, owing to little scientific discussion. Similarly, Neyestani and Juanzon (2017) concluded that quality standard of ISO 9001 does not correlated significantly with the innovation and learning perspective in organizations. Second, there is lack of research which examined the influence of ISO 9001 implementation on innovation (e.g., Saleem et al., 2011; Fatima, 2014), therefore the underlying study examined the relationship of QMS on financial performance directly and indirectly via innovation. According to Bhatti et al. (2013), innovation management is clearly lacking in developing countries and in this context the current research would reveal critical insights of the relationship between proposed variables. Third, our research answers the call of Manders et al. (2016) to examine the impact of contextual factors like type and size of organization on the relationship between QMS and innovation.

In the light of the aforementioned literature, contradictory results were observed regarding the association among implementation of QMS, financial performance and innovation which needs further investigation. Accordingly, the purpose of this research was to examine the effect of QMS (ISO 9001 certification) on financial performance via innovation. In addition, the impact of contextual factors like the type and the size of organization was also examined on the relationship of proposed variables specially in the context of Pakistan. The results obtained from this study would facilitate the

practitioner to have understanding of, the significance of implementing QMS in innovation activities of organization in an emerging market and its effects on the organizational financial gain.

Literature Review and Development of Hypotheses

International Organization for Standardization (ISO) develops the quality standard ISO 9001 as Quality Management System (QMS) in 1987. This standard has been subsequently revised four times.

QMS and Financial Performance

There is a stream of research studies that find the association between QMS and financial benefits but the results are still unclear and inconsistent. However a systematic review reveals that significant number of studies claimed the positive effect of QMS on financial performance (Aba et al., 2016; Sharma, 2005; Psomas & Kafetzopoulos, 2014; Zhelyazkov, 2016). For example, Sharma (2005) found improvements in profit margin, growth in sales and earnings per share of organizations after implementing QMS. In the same way, Aba et al. (2016) revealed significant improvement in operating performance measured by dividing EBITA of the firms by total assets in US, after certification. Psomas and Kafetzopoulos (2014) also disclosed positive association between them as they found that the financial and market position of ISO 9001 certified firms are significantly better than non-certified firms. Zhelyazkov (2016) analyzed the finding of the research conducted in last two decades and summarized that the implementation of ISO 9001 helps to enhance the sales and profit of organization in the market. Therefore, the following hypothesis is introduced to examine the association of QMS with financial performance in Pakistan's manufacturing sector.

H1: QMS implementation positively associated with financial performance.

QMS and Innovation

Contemporarily, the quality and innovation has gained significant importance and are considered as critical indicators to sustain competitive advantage. Willar et al. (2015) suggested that both quality and innovation are key driving forces to performance. Various researchers even proposed that Quality management is a prerequisite for innovation (Hoang et al., 2006; Naveh & Erez, 2004). The adoption of quality management contributes to economic-efficiency and innovation enhancement activities, which are important in achieving competitiveness levels (Schuurman, 1997). Moreover, it can help to develop culture and environment that foster innovation. Similarly, according to Naveh and Erez (2004) the implementation of ISO 9001 with other management practices like teamwork, will encourage innovation and adherence to standardization.

Prior literature reveals mixed results related to effects of quality management practices on numerous aspects of organizational performance. The same is true for the direct relationship between

QMS and innovation. Like Kuo et al. (2009) stated that the firms temptation to achieve quick certification without true commitment to quality results, increase the bureaucratic culture, that reduces flexibility and innovation. Al-Refaie et al. (2012) surveyed the association quality standard ISO 9001 and innovation in manufacturing companies of Jordan and found that ISO 9001 does not have positive effect on product innovation performance. Moreover, Pekovic (2010) also found insignificant relationship and recommend that quality management system need to integrate with other organizational practices to give positive improvement in innovation. Whereas some reported significant association also like Kafetzopoulos et al. (2015) conducted survey in food manufacturing sector of Greece and identified a positive influence of QMS on product innovation. Vynaryk and Hanley (2015) identified that implementation of ISO 9001 support innovation process in the form of advanced and technological solutions.

Recently, Manders et al. (2016) and Neyestani and Juanzon (2017) explored the correlation between QMS and organizational performance in depth and unearthed that there is lack of studies on innovation. To fill this research gap and to investigate the association of QMS implementation with innovation activities in developing country perspective, following hypothesis is proposed:

H2: QMS implementation positively associated with Innovation.

Innovation and Financial Performance

Today, innovation is considered as one of the important element that help the organizations to gain competitive advantage and economic benefits (Reguia, 2014). Through innovation the firms can respond effectively to the current demand and improve their performance. Earlier the organizations gave more emphasis on quality to enjoy financial benefits, however with the passage of time, the basis of market competition has been shifted from quality to innovation (Hung et al., 2010). Thus, to gain maximum financial benefits organizations needs to adopt both quality and innovation as competitive forces.

Reguia (2014) studied the impact of product innovation on performance and concluded that product innovation brings improvement in productivity, market share, profit margin, effectiveness and efficiency of the organizations. Whereas, process innovation helps to reduce and eliminate errors in process and waste and in turn improve financial performance (Camisón & Puig-Denia, 2016). Contrarily, innovation may not always lead to positive outcomes rather organizations might experience reduced financial performance on account of failed innovative effort (Markham & Griffin, 1998). Literature shows contradictory views regarding any influence of innovation in improving the financial performance. Therefore, it is important to further investigate the relationship between innovation and financial performance. Based on the above discussion, we hypothesize:

H3: Innovation positively associated with financial performance.

Innovation as Mediator

Up-to-date, various empirical studies have examined the direct effect of quality practices on the different perspectives of organizational performance and financial performance. For example Kafetzopoulos et al. (2015) examined manufacturing firms in Greek and found direct influence of QMS implementation on operational performance and indirect influence on business indicators through mediating role of operational performance. Similarly, the results of Islam et al. (2015) supported the results of study of Kafetzopoulos et al., and conclude significant influence of QMS on non-financial performance indicators and insignificant influence on financial performance in Saudi Arabia.

Literature introduced innovation as an operational excellence indicator to gain the competitive advantage. However the prior studies revealed, not only lack of research but also inconclusive findings regarding the QMS implementation in supporting the innovation process in the organizations (Manders et al., 2016; Neyestani & Juanzon, 2017). Therefore, to bridge this gap, it is important to examine the interrelationship between QMS, innovation and financial performance. We thus hypothesize:

H4: Innovation mediates the relationship between QMS implementation and financial performance.

Influence of Contextual Factors

The success of quality management system (QMS) implementation, depends on a several contextual factors like sector or organization, size of organization, country, ISO 9001 version, and motivation of the organization (Criado & Calvo-Mora, 2009; Manders et al., 2016; Neyestani & Juanzon, 2017). Literature evidence that the influence of these factors have been rarely examined in empirical studies and conclude inconclusive results, specifically the QMS (ISO 9001) – innovation relationship (Sadikoglu, 2004; Sila, 2007). Manders et al. (2016) calls for research to test the impact of size of firm, nature/type of firm, region, version of standard and organization' motivation on the association between QMS and innovation. Accordingly, to address these controversies, this research analyzed the influence of size and nature/type of organizations, on the proposed relationship in the context of Pakistan's manufacturing sector.

Organization Size

A number of studies have different views on how size of company effects implementation of QM and innovation outcomes. For instance, large size organizations have more potential to innovate because they have more resources to invest (Vincent et al., 2004) whereas, the small and medium size firms don't have enough funds to finance innovation projects, as it is stated by Gunnlaugsdóttir (2002) that the process of acquiring and implementing QMS (ISO 9001) in the organizations, is very costly. In the contradiction of this statement, Mangiarotti and Riillo (2014), discovered high effect of ISO

9001 on innovation in small firms. Whereas, Sila (2007), surprisingly found no effect of firm size on QMS success. Ahire et al. (1996) also found that the size of an organization does not appear to impact its ability to effectively implement TQM. It must be noted that firm size is frequently used as a control variable in studies on innovation. However, the mixed results required more research on this area. Thus, following hypothesis was proposed:

H5: The organizations certified to ISO 9001 have significant difference in financial performance on the basis of their firm size.

H6: The organizations certified to ISO 9001 have significant difference in innovation performance on the basis of their firm size.

Organization type

Industries differ in the nature of production processes. Therefore, the process of innovation may vary in different sectors depending on the access to knowledge, development of technological change rate and connections between organizations. In high technology sectors, the speed of change is rapid whereas it is slow in low and medium technology industries (Manders et al., 2016). The services and manufacturing industries are likely to experience uncommon benefits from QMS. Mangiarotti and Riillo (2014) confirmed that the implementation of QMS has increased technological innovation in manufacturing organizations whereas non-technological innovation has increased in service organizations. Similarly, Criado and Calvo-Mora (2009) outlined the differences in the performance between industrial and service organizations as a result of implementation of quality management practice. The literature suggests that the character of economic sector may influence innovation development (Forsman, 2011).

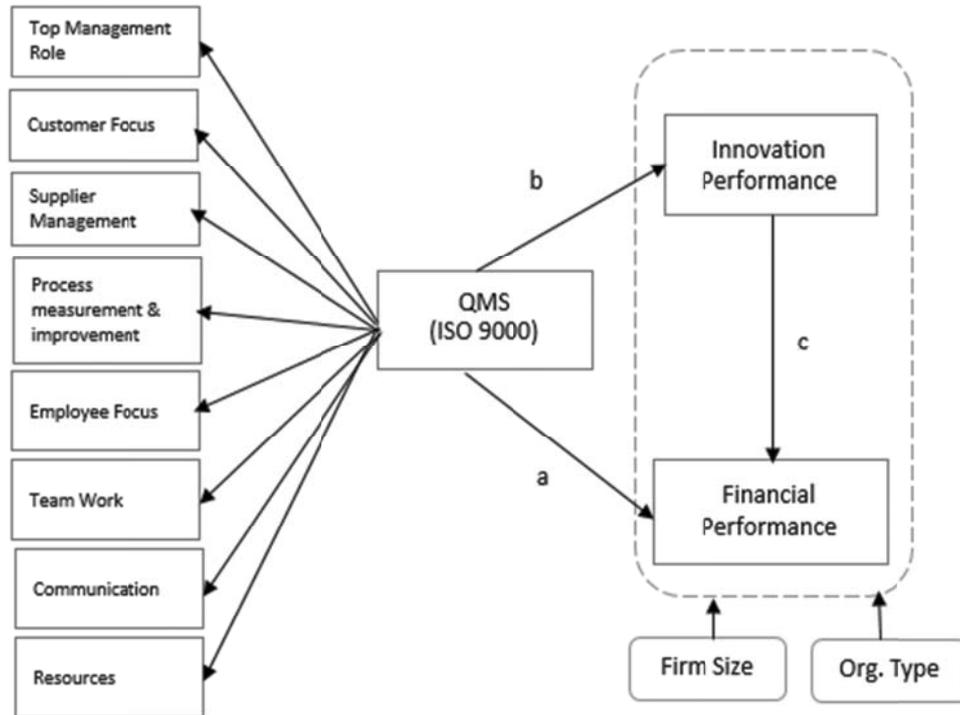
Jayaram, Ahire, and Dreyfus (2010) attempted to resolve this area and concluded a significant effect of type of industry and firm size in the relationship between QM implementation on final outcomes. Criado and Calvo-Mora (2009) interestingly discover that in industrial organizations the level of engagement from the management is different as compared to service organizations. Hence the quality practices are better in industrial sector than services. This ambiguity leads to propose following hypotheses.

H7: The organizations certified to ISO 9001 have significant difference in financial performance on the basis of organization type.

H8: The organizations certified to ISO 9001 have significant difference in innovation performance on the basis of organization type.

Theoretical Framework

Based on offer mentioned hypothesis following theoretical framework has been proposed.



- H1 = QMS → Financial Performance 'a'
- H2 = QMS → Innovation Performance 'b'
- H3 = Innovation Performance → Financial Performance 'c'
- H4 = QMS → Innovation Performance → Financial performance 'abc'

Figure 1: Theoretical Framework

Research Methodology and Data Analysis

Instrument Design

The self-administered questionnaire was used for collection of data from manufacturing companies. First part was based of personal information of a respondent and organization. Second part was based on the items to measure influence of QMS implementation on the performance variables. The determinants of QMS were based on ISO 9001:2008 and items were adopted from the studies of Arauz and Suzuki (2004) and Singh (2008). The 5 point likert scale from 1 (strongly

disagree) to 5 (strongly agree) was employed to examine the construct QMS (ISO 9001) implementation in the organization.

The items used to measure innovation were based on Product innovation and adopted from Mangiarotti and Riillo (2014). Like number of product increased, level of newness, speed of new product increased etc. The items of financial performance adopted from the study of Han et al. (2007). The 5-point likert scale ranging from 1 (No improvement) to 5 (improvement to a great extent) was used to assess the responses of both innovation and financial performance.

Further the two contextual factors 1) size of organization (measured on the basis of number of employees in the organization) and 2) type of organization (based on the potential industry-type effects).

Sampling

For this study the manufacturing sector was selected as a population. As it is the second highest sector that contributes 13.5 percent to GDP of Pakistan. The data for this study was collected from 379 manufacturing companies which includes food, textile, chemicals, automobile, constructions, electronic, tobacco etc. All of them are listed in Pakistan Stock Exchange. Total 189 companies responded to the survey with response rate 49.86%.

The majority (70.8 %) of the companies were classified as textile, followed by automobile (9.7%), food (8.6 %), chemical and pharmaceuticals (6.5 %) sectors. Moreover, firm size, was measured in terms of number of employees in organization. The scale was divided in to four ranges, from which, majority of the employees falls in range having employees above 1000 (40.9%), followed with, between 200 to 500 (24.7%), between 501 to 1000 (20.5%) and then minimum contribution was from range less than 200 (13.9%).

Measurement Model of QMS

The confirmatory factor analysis (CFA) was used for measurement model. For CFA of the construct the SEM was used to establish the validity. The initial measurement model of QMS (ISO 9001), had total 8 constructs comprised of 56 items. According to Bienstock et al. (1997), during CFA the items with factor loading value less than 0.5 can be eliminated and this process of deletion can be continuing, till the one fifth items retained. Thus, by following the process defined by Bienstock et al. (1999) the construct of QMS left with 6 constructs, 29 items and the factor loading values ranging from 0.720 to 0.870 (above 0.5 at $p > 0.05$). The remaining CFA of the model showed the satisfactory fit model meeting desired values defined by Kline (2016) in table 2 (i.e $\chi^2/df = 1.76$, CFI = 0.93, GFI = 0.81, NFI = 0.85, and TLI = 0.92, RMSEA = 0.06).

Reliability Analysis: It measures the internal consistency of the items. Researchers indicate the value of Cronbach's Alpha is one of the most frequent method to test the reliability of the instrument and its recommended cut off point is 0.7 (Saunders et al., 2012). The values of Cronbach's alpha, of all constructs and sub constructs, presented in table 1 are greater than 0.70, thus all the constructs are highly reliable.

Convergent Validity: the composite reliability (CR) and Average Variance Extracted (AVE) were measured to determine the convergent validity. The recommended cut off points for CR and AVE are 0.7 and 0.5 respectively. Table 1 shows that the CR and AVE of all the variables meets the recommended values.

Discriminant Validity: It measures the degree that the concepts are distinct from each other (Bagozzi et al., 1991). Discriminant validity exist if alpha value of a construct is greater than the average correlation of the construct with other variables in model, (Ghiselli et al., 1981). Thus, the positive values in table 1 (column 7), provide the evidence of existence of discriminant validity.

Table 1
Results of Reliability and Validity Test

Latent constructs	No of items	Cronbach's Alpha >0.7	Composite Reliability CR > 0.7	Average Variance Extracted AVE >0.5	Average correlation with other variables(x)	Discriminant validity (alpha - x)
Top Management Role	5	0.876	0.877	0.589	0.656	0.220
Customer Focus	3	0.829	0.835	0.627	0.626	0.203
Supplier Management	3	0.816	0.819	0.601	0.642	0.174
Process measurement & improvement	7	0.909	0.910	0.558	0.716	0.193
Communication	6	0.895	0.896	0.591	0.661	0.234
Resource Management	5	0.908	0.909	0.666	0.642	0.266
Total items of QMS	29	0.963	-	-	-	-
Innovation	4	0.892	0.892	0.68	0.549	0.343
Financial Performance	4	0.881	0.885	0.66	0.549	0.340

Structure Path Analysis

Hypotheses of the proposed structure model (Figure 2) were tested by using SEM. According to Kline (2016) the SEM is the more suitable method to examine the relationship among multiple dependent, independent and mediating variables. Table 2 shows that the summary of the goodness of fit indices of different paths. The goodness of fit indices of proposed model, QMS to FP from Innovation were ($\chi^2/df = 1.711$, CFI= 0.912, NFI = 0.814, GFI = 0.776, TLI = 0.905, RMSEA = 0.061) meeting the desired values defined by Kline (2016).

Table 2
Summary of Goodness of fit

Model Test	χ^2	df	χ^2/df	CFI	NFI	GFI	TLI	RMSEA
CFA of QMS(ISO)	646.92	368	1.758	0.928	0.848	0.813	0.920	0.063
Direct path from QMS(ISO) to FP	836.563	485	1.725	0.920	0.830	0.792	0.913	0.062
Direct path from QMS(ISO) to Innovation	839.354	485	1.731	0.920	0.831	0.797	0.913	0.062
Indirect path from QMS to FP through Innovation	1055.38	617	1.711	0.912	0.814	0.776	0.905	0.061
Threshold values*			<3	>0.9	>0.9	Close to 1	>0.9	<0.08

*(Kline, 2016)

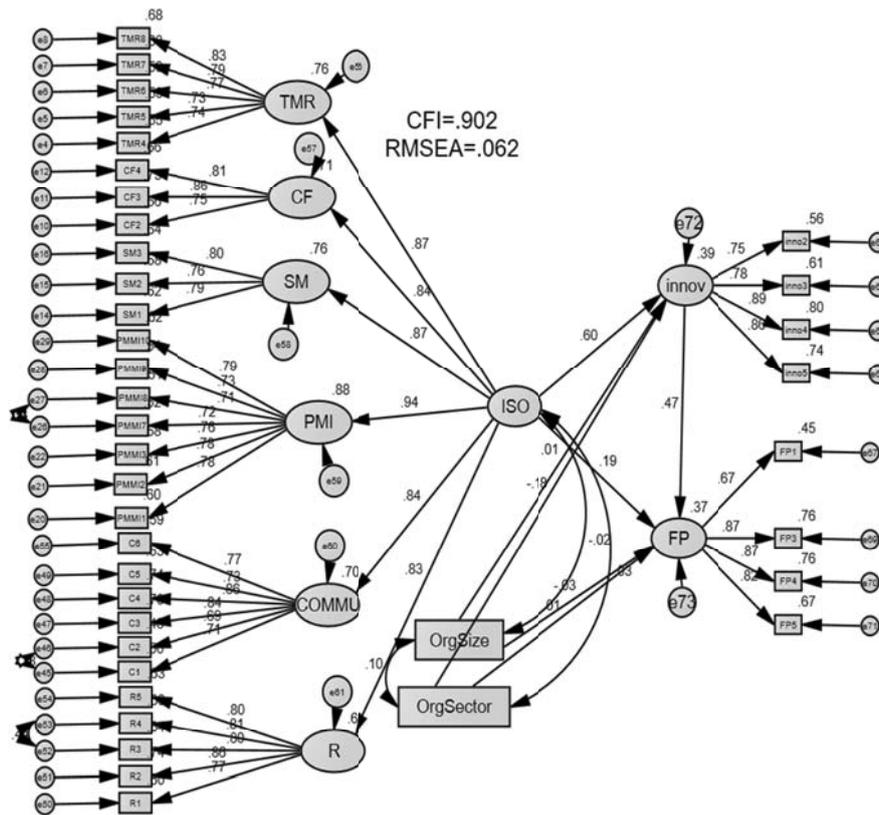


Figure 2 : Structural Model

Hypotheses testing

Table 3 presents the direct and indirect effects of structural model, checked by using SEM.

Direct effect: The regression coefficient between first direct effect showed the significant relation between QMS and financial performance (FP) at unstandardized β (0.545) and standardized value of β (0.470). This result supported the H1 and indicated the positive influence of quality management system on financial performance. Moreover, the direct effect of ISO on innovation (Innov) was observed significant and positive at unstandardized $\beta = 0.834$ and standardized $\beta = 0.600$. Lastly, the third direct effect of innovation on FP was also found significant and positive with unstandardized $\beta = 0.407$ and standardized $\beta = 0.470$ which supporting the hypothesis H2 and H3 as well.

Indirect effect: The bootstrapping technique at 5000 samples was employed to test the indirect effect among variables. Table 3 presents the indirect effect of path and results of this study showed that the innovation is significantly mediates between ISO 9001 and financial performance with *Indirect effect* = 0.279 (at 95% CI ranging from 0.137 to 0.486, $p < 0.05$). Hence the results support the hypothesis H4. Moreover, it is observed that the direct influence of QMS on FP through mediator innovation, get reduced but remain significant and positive (unstandardized $\beta = 0.233$, standardized $\beta = 0.193$) at $p = 0.031$, less than 0.05. Hence, innovation mediates partially between the relationship of QMS and FP. The results indicated that the implementation of QMS encourage the innovation activities in the organization and hence the organizations enjoy better financial outcomes.

Table 3

Direct Effects of Coefficients of the Hypothesized Model

Hypothesis	Path	Unstandardized Estimate	Standardized Estimate	S. E	Result			
H1	ISO \rightarrow FP	0.545	0.470***	0.106	Sig & Accepted			
H2	ISO \rightarrow Innov	0.834	0.600***	0.127	Sig & Accepted			
H3	Innov \rightarrow FP	0.407	0.470***	0.079	Sig & Accepted			
Bootstrap Results for Indirect Path								
Hypothesis	Path	Unstandardized Estimate	Standardized Estimate	Effect	S. E	LL 95%CI	UL 95%CI	Result
H4	ISO \rightarrow Innov \rightarrow FP	0.233	0.193*	0.279	0.108	0.137	0.486	Sig & Accepted

*** $p < 0.001$, * $p < 0.05$, ISO = QMS (ISO 9000 certification), Innov = Innovation, FP = Financial performance
 Bootstrap sample size = 2000, LL = lower limit, UL = upper limit, CI = confidence interval

Effects of contextual factors on QMS implementation results

Table 4 shows the analysis of variance between the four different groups and results showed that size of organization has insignificant influence on innovation (ANOVA, $t = 0.672$, $p > 0.05$) and financial performance (ANOVA, $t = 0.742$, $p > 0.05$) of the organization. Thus, size of organization does not make difference on the product innovation activities and financial performance of organization.

Table 4
Analysis of difference in mean (size of firm)

Hypothesize	Mean				Levene Test		ANOVA	
	Below 200	200-500	501-1000	Above 1000	F	Sig	T	Sig
H5: OrgSize → Innov	3.9931	3.7769	3.8866	3.9011	3.116	0.027	0.672	0.570 (ns)
H6: OrgSize → FP	4.1575	3.9750	3.9089	4.0292	2.216	0.088	0.742	0.528 (ns)

*ns = not significant, *** $p < 0.001$*
OrgSize = Size of Organization, Innov = Innovation, FP = Financial performance

Similarly, Table 5 shows insignificant impact of the sectors, on the relationship between QMS implementation, innovation and financial performance. The results found no influence of nature/type of organization on innovation (ANOVA, $t = 1.399$, $p > 0.05$) and financial performance (ANOVA, $t = 0.557$, $p > 0.05$) of the organization.

Table 5
Analysis of difference in mean (type of organization)

Hypothesize	Mean					Levene Test		ANOVA	
	Textile	Auto	Food	C&P	Others	F	Sig	T	Sig
H7: OrgSector → Innov	3.960	3.627	3.831	3.746	3.733	1.208	0.309	1.399	0.236 (ns)
H8: OrgSector → FP	4.062	3.868	3.918	4.046	3.933	0.767	0.548	0.557	0.694 (ns)

*ns = not significant, *** $p < 0.001$*
OrgSector = nature/type of Organization, Innov = Innovation, FP = Financial performance, Auto = Automobile, C&P = Chemical & Pharmaceuticals"

Discussion and Conclusion

The primary objective of this paper was to examine empirically how QMS affects financial

performance and innovative activities in the organization. Secondly, to test the mediating role of innovation in understanding the relationship between QMS implementation and financial performance. Moreover, the moderating role of two contextual factors size and type of organization were also examined on the proposed relationships. Previously significant studies have been conducted to explore the relationship that exists between QMS and performance however the literature does not seem to agree upon QMS implementation positively affects financial performance and innovation. Recent literature highlighted that less empirically evidence is available about the relationship between QMS and innovation. Hence, this study aimed;

- a) to examine whether QMS implementation facilitate the innovation process or not,
- b) the role of innovation as a mediator and
- c) the influence of two contextual factors i.e type and size of organization.

The results of this study has confirmed a significant and positive effect of QMS on financial performance. This result is also consistent with studies done in past that claim positive association between them (Sharma, 2005; Psomas & Kafetzopoulos 2014). Further this study also found that QMS (ISO 9001) positively influence the innovation and supported the findings of various previous studies (Vynaryk & Hanley, 2015; Mangiarotti & Riillo, 2014). It means that the implementation of QMS brings significant improvement in the innovation process of manufacturing organizations of Pakistan. Though the innovation process is not a contemporary phenomenon, however, its significance has increased manifold in an era of competitive advantage (Hung et al., 2010). In addition, results about the direct effect of innovation on financial performance was also significant and positive. The result of this relationship is also consistent with the findings of existing literature (Reguia, 2014; Camisón & Puig-Denia, 2016). Then, we found that innovation positively intervene between the relationship of QMS and financial performance of the manufacturing organizations in Pakistan. This suggest that the ISO 9001 certified organizations are more innovation oriented and hence enjoy better financial outcomes. These results strengthen the existing finding in the literature that implementation of QMS stimulates innovation and negate the myth that ISO 9001 standards certification hinders the creativity and innovation in the organizations.

Moreover, it is interesting to note that during the process of measurement model of quality management system, the constructs - teamwork and employee focus were deleted that support the findings of many previous studies (Asif et al., 2013; Shafiq et al., 2014) which provide evidence that QMS (ISO 9001:2008) does not encourage the involvement of the employee. Contrarily in the literature of TQM the employee focus and teamwork are main critical success factors to improve the quality and organizational performance. Therefore, the certified organizations in Pakistan should understand the importance of these constructs as, employees are key stakeholders and by giving them importance it will improve their moral and efficiency, which in turn improves the innovation performance in organization (Sung & Choi, 2014). Similarly, culture of team work in an organization ensures collective responsibility and in turn employees come up with new innovative ideas.

Finally, we found that the two contextual factors, size of the organization and type of organization, have no significant impact on the relationship between the QMS and its outcome. These results are in line with the findings obtained in previous studies that showed the firms size has no impact on implementation of QMS (Hashem & Tann, 2007; Vincent et al., 2004). According to Sadikoglu (2004), type of firms and size did not affect the success of quality management system. Similarly, Hashem and Tann (2007) indicated that company size is insignificant predictor for adopting ISO standards. These results also support the arguments that ISO 9001 standard can be practice efficiently in any size and sector of organization (Sila, 2007).

In nutshell, this study concludes that the QMS brings positive improvement in financial performance through innovation as mediator. Moreover, this study also found that the positive effect of QMS on financial performance and innovation is not influenced by the size and type of the organization. Thus, any type and size of manufacturing organization can achieve higher financial and innovation results after implementing QMS. Moreover, it is necessary to outline that in the latest version of ISO 9001 (ISO 9001:2015), the attempt is taken to make QMS less bureaucratic. For example, in the revised version there is no need of mandatory SOP's which was there in previous versions. This allow the companies to design the QMS documentation as per their own requirement in a flexible way to enhance the innovative activities in the organization.

This study contributes to existing literature of quality management and innovation. From theoretical perspective, the findings of this paper confirm that implementation of QMS system and standards help to enhance innovation activities and financial position of the organization. Moreover, it helps the academicians to understand the significance of innovation in the correlation between QMS implementation and financial performance. From practical perspective the results of this study would assist the practitioner to know the status of innovation activities in Pakistan's certified manufacturing sector, the role of QMS in fostering innovation activities in an emerging market and its effects on the financial performance of organization.

This study also carries certain limitations. For example, in this study, only product innovation was used to measure the innovation performance whereas, the literature identified different types of innovation like process innovation, technology innovation etc. Hence, in future, it is directed to use other types of innovation to have more clarity in understanding the effectiveness of QMS in enhancing innovation. Furthermore, the impact of institutional quality may also be observed as it can improve the innovation capabilities and financial performance in the organization.

References

- Aba, E. K., Badar, M. A., & Hayden, M. A. (2016). Impact of ISO 9001 certification on firms financial operating performance. *International Journal of Quality & Reliability Management*, 33(1),

78–89.

- Ahire, S. L., Waller, M. A., & Golhar, D. Y. (1996). Quality management in TQM versus non-TQM firms: an empirical investigation. *The International Journal of Quality & Reliability Management*, 13(8), 8–27.
- Arauz, R., & Suzuki, H. (2004). ISO 9000 Performance in Japanese Industries. *Total Quality Management & Business Excellence*, 15(1), 3–33.
- Asif, M., Awan, M. U., Khan, M. K., & Ahmad, N. (2013). A model for total quality management in higher education. *Quality & Quantity*, 47, 1883–1904.
- Bagozzi, R. P., Yi, Y., & Phillips, L. W. (1991). Assessing Construct Validity in Organizational Research. *Administrative Science Quarterly*, 36(3), 421–458.
- Bhatti, S. H., Nauman, S., & Ehsan, N. (2013). The dominant patterns of innovative behavior of a developing country. *Journal of Quality and Technology Management*, IX(I), 31–55.
- Camisón, C., & Puig-Denia, A. (2016). Are quality management practices enough to improve process innovation? *International Journal of Production Research*, 54(10), 2875–2894. 6
- Criado, F., & Calvo-Mora, A. (2009). Excellence profiles in Spanish firms with quality management systems. *Total Quality Management & Business Excellence*, 20(6), 655–679.
- Fatima, M. (2014). Impact of ISO 9000 on Business Performance in Pakistan: Implications for Quality in Developing Countries. *The Quality Management Journal*, 21(1), 16–24.
- Forsman, H. (2011). Innovation capacity and innovation development in small enterprises. A comparison between the manufacturing and service sectors. *Research Policy*, 40(5), 739–750.
- Ghiselli, E. E., Campbell, J. P., & Zedeck, S. (1981). *Measurement theory for the behavioral sciences*.
- Gotzamani, K. D., & Tsiotras, G. D. (2002). The true motives behind ISO 9000 certification. *International Journal of Quality & Reliability Management*, 19(2), 151–169.
- Guasch, J. L., Racine, J. L., Sanchez, I., & Diop, M. (2007). *Quality systems and standards for a competitive edge*. The World Bank.
- Gunnlaugsdóttir, J. (2002). The quality must be on record: a survey of organisations having an ISO 9000 certification in Iceland. *Records Management Journal*, 12(2), 40–47.
- Han, S. B., Chen, S. k., & Ebrahimpour, M. (2007). The Impact of ISO 9000 on TQM and Business Performance. *Journal of Business and Economic Studies*, 13(2), 1–23.
- Hashem, G., & Tann, J. (2007). The adoption of ISO 9000 standards within the Egyptian context: A diffusion of innovation approach. *Total Quality Management & Business Excellence*, 18(6), 631–652.
- Hoang, D. T., Igel, B., & Laosirihongthong, T. (2006). The impact of total quality management on innovation. *International Journal of Quality & Reliability Management*, 23(9), 1092–1117.
- Hoyle, D. (2009). *ISO 9000 Quality Systems Handbook*.
- Hung, R. Y.-Y., Lien, B. Y.-H., Fang, S.-C., & McLean, G. N. (2010). Knowledge as a facilitator for enhancing innovation performance through total quality management. *Total Quality Management & Business Excellence*, 21(4), 425–438.
- Islam, M. M., Karim, M. A., & Habes., E. M. (2015). Relationship between quality certification and

- financial & non-financial performance of organizations. *The Journal of Developing Areas*, 49(6), 119–132.
- Jayaram, J., Ahire, S. L., & Dreyfus, P. (2010). Contingency relationships of firm size, TQM duration, unionization, and industry context on TQM implementation — A focus on total effects. *Journal of Operations Management*, 28(4), 345–356.
- Kafetzopoulos, D. P., Psomas, E. L., & Gotzamani, K. D. (2015). The impact of quality management systems on the performance of manufacturing firms. *International Journal of Quality & Reliability Management*, 32(4), 381–399.
- Kampouridis, G., Yiannopoulos, A. C., Giannopoulos, G. I., & Tsirkas, S. A. (2015). The relationship between TQM and financial performance of Greek companies of structural construction sector during crisis period. *Journal of Economics and Business*, 18(1), 61-78.
- Kaziliūnas, A. (2010). Impacts of different factors on the implementation of quality management systems and performance outcomes. *Current Issues of Business and Law*, 5(1), 75–92.
- Kline, R. B. (2016). Mean structures and latent growth models. *Principles and practice of structural equation modeling, 4th edn. The Guildford Press, New York*, 369-393.
- Kuo, T., Chang, T., Hung, K., & Lin, M. (2009). Employees' perspective on the effectiveness of ISO 9000 certification: A Total Quality Management framework. *Total Quality Management & Business Excellence*, 20(12), 1321–1335.
- Manders, B., de Vries, H. J., & Blind, K. (2016). ISO 9001 and product innovation: A literature review and research framework. *Technovation*, 48, 41-55.
- Mangiarotti, G., & Riillo, C. a. F. (2014). Standards and innovation in manufacturing and services: the case of ISO 9000. *International Journal of Quality & Reliability Management*, 31(4), 435–454.
- Markham, S. K., & Griffin, A. (1998). The breakfast of champions: associations between champions and product development environments, practices and performance. *Journal of Product Innovation Management: AN INTERNATIONAL PUBLICATION OF THE PRODUCT DEVELOPMENT & MANAGEMENT ASSOCIATION*, 15(5), 436-454.
- Neyestani, B., & Juanzon, J. B. P. (2017). ISO 9001 standard and organization's performance: A literature review. *International Journal of Advanced Multidisciplinary Research*, 4(2), 6–13.
- Naveh, E., & Erez, M. (2004). Innovation and attention to detail in the quality improvement paradigm. *Management Science*, 50(11), 1576-1586.
- Pekovic, S. (2010). The determinants of ISO 9000 certification: A comparison of the manufacturing and service sectors. *Journal of Economic Issues*, 44(4), 895-914.
- Pivka, M., & Mulej, M. (2004). Requisitely holistic ISO 9000 audit leads to continuous innovation/improvement. *Cybernetics and Systems: An International Journal*, 35(4), 363-378.
- Psomas, E., & Kafetzopoulos, D. (2014). Performance measures of ISO 9001 certified and non-certified manufacturing companies. *Benchmarking: An International Journal*, 21(5), 756–774.
- Reguia, C. (2014). Product Innovation and the competitive advantage. *European Scientific Journal*, 1, 140–157.

- Sadikoglu, E. (2004). Total quality management: Context and performance. *Journal of American Academy of Business*, 5, 364–366.
- Saleem, I., Siddique, I., Akmal, A., Saad, M., & Khan, M. (2011). Impact assessment of ISO 9000 series on the organizational performance : Empirical evidence from small and medium enterprise (SME) sector of Pakistan. *African Journal of Business Management*, 5(26), 10885–10892.
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2012). *Research Methods for Business Students. World Wide Web Internet And Web Information Systems*.
- Schuurman, H. (1997). Quality Management and Competitiveness: The Diffusion of the ISO 9000 Standards in Latin America and Recommendations for Government Strategies. *Management*, 69.
- Shafiq, M., Mirza, K., Abid, K., & Naeem, M. A. (2014). Effect of ISO 9000 Certification on Tqm Implementation. *Journal of Quality and Technology Management*, X(II), 1–26.
- Sharma, D. S. (2005). The association between ISO 9000 certification and financial performance. *International Journal of Accounting*, 40(2), 151–172.
- Sila, I. (2007). Examining the effects of contextual factors on TQM and performance through the lens of organizational theories: An empirical study. *Journal of Operations Management*, 25(1), 83–109.
- Singh, P. J. (2008). Empirical assessment of ISO 9000 related management practices and performance relationships. *International Journal of Production Economics*, 113(1), 40–59.
- Sun, H. (2000). Total quality management, ISO 9000 certification and performance improvement. *International Journal of Quality & Reliability Management*, 17(2), 168–179.
- Vincent, L. H., Bharadwaj, S. G., & Challagalla., G. N. (2004). *Does innovation mediate firm performance?: A meta-analysis of determinants and consequences of organizational innovation*.
- Vynaryk, V., & Hanley, A. (2015). Effects of the QMS ISO 9000 certification on Russian manufacturing companies. *Higher School of Economics Research Paper No*, 39.
- Willar, D., Coffey, V., & Trigunarsyah, B. (2015). Examining the implementation of ISO 9001 in Indonesian construction companies. *The TQM Journal*, 27(1), 94–107.
- Zhelyazkov, G. (2016). Impact of ISO 9000 on Business Performance.

SOCIAL CAPITAL, HAPPINESS AND ECONOMIC GROWTH: ASIAN EVIDENCE

Sadaf Shahab¹, Muhammad Tariq Mahmood² and Muhammad Hafeez³

Abstract

It is widely accepted that social capital including all of its antecedents affects the economic performance significantly. However, the consensus over the direction of this effect is still missing element of academic research on the issue. This study has contrasted to conventional macroeconomic approach of using social capital variables in a formal growth model and done is a refined analysis to evaluate the impact of social and physical capitals on growth, happiness and of growth and happiness on social capital in a panel data analysis of 36 Asian Economies. The present study is addressing the missing element, social capital, in panel of 36 Asian Economies. It estimates the effect of social and physical capital on economic growth, happiness. It also computes the impact of economic growth happiness on social capital. The results imply that growth is subject to both social and physical capital while social capital is mainly talent, innovation and competitiveness driven alongside growth. However, happiness requires something more than growth. The trust, harmony and other factors contribute to social capital and happiness. This paper has implications to future research and the prediction of the discipline and regular pattern of the upcoming social capital in Asian Economies.

Keywords: Social Capital, Well-being, Talent, Competitiveness, Happiness.

JEL Classification: A130, E710

Introduction

Evolution of economy is not a process of financial development isolated from society and not self-sustaining. Wealth creation is not a segregate, but rather depends upon pre-existing socio-cultural conditions for its strength. A crude market structure is based and facilitating environments and is

¹ Assistant Professor, Department of Economics, Federal Urdu University of Arts Science and Technology, Islamabad, Pakistan. Email: shahab.sadaf@gmail.com

² Assistant Professor, HOD, Department of Commerce, Federal Urdu University of Arts Science and Technology, Islamabad, Pakistan. Email: tm76pk@gmail.com

³ Corresponding Author : Ph.D. Candidate, School of Economics and Management, Beijing University of Posts and Telecommunications, Beijing, China. Email: hafeez@bupt.edu.cn

linked to agents through multiple inter-connections. The expansion in wealth and markets goad to expand the capacity of the economic agents; which in turn benefits the society. As a result, social classes and new profession emerge; educational attainment and health of general public improve. The emerging communication between the economy and the institutional culture around it accumulates the social capital. Higher social capital accumulation provides higher quality of life for the individuals and their families. This situation also generates migration of individual from low to a higher level of social capital.

The literature defines social capital as; “a form of extensively providing private good that is either open/free or greatly subsidized” (See for example Brown et al., 2006 among others). And Bourdieu (1983) elaborates social capital “as the resources, and services achieved by merely being element of a group, or extensive network by virtue of one’s network location.” This debate further measures the social capital through calculating individuals employed in community-based associations (such as religious or community citizen boards etc.) in a particular geographic vicinity. In socio-economic terms this kind of social capital mechanism is used for resource allocation. However, Bronisz and Heijman (2009) present a precise and relatively undisputed definition stating; “social capital is normally implicit at the same time as the property of a faction rather than the property of an individual.”

Social capital is generally considered as the fourth form of capital, vis-à-vis physical capital, human capital and financial one. Coleman (1998) suggests that like all other forms, it is significant factor of growth: increases the possibility of productive activity. The recent debate in literature also indicates that the social capital and happiness circa has empirical evidence and the predictability of social capital for the happiness hold internationally (Stevenson & Wolfers, 2008; Sacks et al., 2010; Easterlin & Angelescu, 2011; Bartolini & Sarracino, 2009). Particularly, these studies examine the correlation among short, medium and long run time-series of social capital and the welfare. Social capital, unlike pure public structure, is competitively excludable, because it does not freely emit in the public but should be distributed via some method. The aim of this paper is to reconnoiter the relationship between growth, social capital and happiness for a panel of selected Asian economies. The research question can be stated as; “is social capital, like all other forms of capital, an economic concept?”

The rest of the paper is organized as follows; after this brief introduction, section two discusses the theoretical base and the relevant literature on the social capital and economy, section three addresses model and methodological issues; while section four presents results and discussion, section five concludes and proposes some implications.

Theoretical Background and Literature Review

Empirical studies on social capital cover a wide range of social science disciplines, characterize differences in economies in their level of economic and social development to differences in the respective social capital stock. Empirical studies on social capital cover a wide range of social science disciplines, characterize disparities in economies in their stage of economic and social progress to disparities in the respective social capital reserve. Countries or the regions possessing relatively higher stocks of social capital, appear to attain elevated levels of growth, in comparison with the societies having low level of stock among others, see (Brown & Ashman, 1996; Krishna & Uphoff, 1999; Ostrom, 2003; Rose, 2000). Most of such studies agree that social capital adds to scale efficiency and growth by smoothing the process of association between individual interests and achieving the targeted level of income and its fairer distribution.

Social capital also plays a central function for the prediction of international discrepancies in happiness (Bartolini & Sarracino, 2009). Academic literature in this regard tests about the possible correlation between the social capital trends and that of welfare across countries. The studies, in this view, have used an empirical modeling to identify correlation coefficients (see for example, Stevenson & Wolfers, 2008; Sacks et al., 2010; Easterlin et al., 2010; Easterlin & Angelescu, 2011). Particularly, these studies have evaluated the correlation among subjective well-being and social capital in three spans of time-series: long run, medium run and short run.

This particular literature also assesses the correlation coefficient of social capital with GDP. The economic text on happiness has tried to unravel the contradiction by discussing that the dynamic goals of income targeting may counterbalance the positive consequences of rising income on happiness. Such aspirations may also be influenced by the total proceeds of individual's own relevant income group; for that the rituals, social values, culture and consumption patterns of the society do matter (Duesenberry, 1949), or by their own previous income in the course of hedonic treadmill (Frederick & Loewenstein, 1999). In all cases, economic growth is inclined elevate income targets which put forth negative consequence on happiness⁴.

However, the usual choice-based criteria cannot elaborate this hypothesis because in preference based system it is assumed that no matter what people choose, makes them happier (Loewenstein, 1994)⁵. Though other criteria, to base welfare on happiness rather than choices, avoid many such problems but have numerous intrinsic drawbacks. (Frederick & Loewenstein, 1999; Loewenstein & Schkade, 1999; Gilbert et al., 2002). Particularly, people often face to serious health conditions but still exhibit high levels of happiness. However, they agree with others that to healthy is

⁴ This hypothesis can be understood through the modern real business theory, with a leisure-labor paradox.

⁵ We may call it Benthamite School after the name of Jeremy Bentham.

preferable. After reviewing different lines of research Loewenstein and Ubel (2008) argue that no straightforward criterion based on either notion can overcome these problems.

Several papers particularly Helliwell and Putnam (2004) and Bruni and Stanca (2008) have documented that subjective welfare/happiness has positive correlation with social capital in the cross-sectional data. Becchetti et al. (2008, 2009) have shown that social capital has a notable impact on subjective well-being in the sample of developed and developing countries. However, conversely, the broad progress in income levels (due to economic growth) may result in an insignificant boost in average happiness, since, relative loss and gain pay-off each other (Loewenstein & Ubel, 2008). Generally speaking, the essential significance conveyed by happiness studies has increased numeral of the theorists who believe that using GDP as a factor of welfare may be a question mark.

In line with Putnam (1993) community organizations are sources of common conviction and social ties lead to increased scale efficiency. These diverse views provoked empirical tests intended for a diverse influence on economic growth (Knack 1999; Glaeser et al., 2002). On the whole, Knack (1999) argues that even though every individual calculation of large-scale social capital undergoes a few deficiencies, taken together the body of literature points to a considerable and activist role of social capital for economic growth. And that the influence of social capital is positive: “higher stages of social capital are coupled with succeeding improvements.” Social capital is a contributor to growth by signifying the collaboration and conviction within the firm, the market and the nation.

We can summarize this discussion and frame our study as follow:

- (i) The happiness, growth and social capital nexus sometimes exists for some countries over long period of time and for some it does not hold (Stevenson & Wolfers, 2008). In a group of selected panel of Asian economies, this study elaborates the status of relationship between the stated variables.
- (ii) Few studies claim that Easterlin paradox (the non-existence of correlation between level of income and happiness) does not hold (for example, Sacks et al.,2010). On the other hand, Easterlin and Angelescu (2011) question about the strength of these inferences stating that these studies failed to differentiate long and short run. In fact, the time perspective is core of the disparity amid Easterlin and others. Easterlin et al. (2010) argues that the significantly positive relation estimated by critics is due to the inclusion of countries in sample with short time series. GDP may matter for welfare in the short run, but such relationships vanish over the long span of time. To answer the questions highlighted by this debate, this study uses a medium term panel data, i.e., five years, and test the existence of horizon randomness.
- (iii) The third critical point is raised by Clark and Georgellis (2010), emphasizing that the scholars put much consideration to the relationship between income and well-being. On the

contrary, insufficient efforts are dedicated to investigate, whether or not the social evaluations are applicable for correlations between happiness and its determinants other than GDP. For said purpose this paper includes a variable consisting of a combined index of talent, innovation and competitiveness to test the Clark (2008) hypothesis who explores that there is (some) evidence of social relations and/or antecedent. However, we are keen to the notion that whether this “something other than GDP” can do any change in the debate over the issue. Deaton (2011), on the other hands, finds high correlation between happiness and stock prices instead of between happiness and income.

Model and Methodology

Based on the discussion in the previous section our reduced form model can be summarized in following system of equations:

$$G_{it} = \alpha_0 + \alpha_1 S_{it} + \alpha_2 K_{it} + \alpha_3 TIC_{it} + \varepsilon_{1it} \dots\dots\dots(1)$$

$$S_{it} = \beta_0 + \beta_1 K_{it} + \beta_2 TIC_{it} + \beta_3 G_{it} + \varepsilon_{2it} \dots\dots\dots(2)$$

$$H_{it} = \alpha_0 + \gamma_1 S_{it} + \gamma_2 K_{it} + \gamma_3 TIC_{it} + \gamma_3 G_{it} + \varepsilon_{1it} \dots\dots\dots(3)$$

Where, G is growth rate of GDP per capita extracted from WDI; S is value of social capital index; K is physical capital that is gross fixed capital formation as percent of GDP; TIC is talent, innovation and competitiveness based combined index. H stands for happiness. The subscripts *i* and *t* denote cross-section and time period respectively. The data used for the purpose of analysis needed through investigation in collection and measurements. The data on talent are taken from Global Creativity Index of Martin prosperity Institute: talent is one of the dimensions in this index. Innovation and competitiveness indices are used from Global Competitiveness Forum. These three indices are combined on the basis of principal component analysis.⁶

Social Capital data are generated from sustainable society index based on 21 indicators, 7 categories and three dimensions. Based on principal component analysis the three dimensions are given appropriate weights to generate a comprehensive social capital index (a feature of this paper). H is the happiness index found in different years' World Happiness Report (WHR). The sample years are 2012-2016, while number of countries included in regression analysis is 26 Asian economies. The selection of countries is based on different criteria; mainly the size of the economy, population and the availability of the data. Total observations are 130 for panel data. We also present descriptive tables of cross-sectional data of 136 countries of the world to compare the correlations and statistics of panel and cross-sectional data.

⁶ There are different measures of talent, social capital, human wellbeing and happiness found in various studies, [for example, Broniesz and Heijman (2009), Bartilini et al. (2009), Grootaert and Van Bastelaer (2001), Webster (2013)].

The physical capital is included as control variable of the regression and will additionally confirm that whether social capital is also an economic capital. This model is estimated through three different methodologies; namely, Fixed Effects, Random Effects and Generalized Methods of Moments. These approaches are used because all three estimate the panel data under different assumption. Using three methodologies also confirm the robustness of coefficients and stability with regard to previous literature. For brevity and generic nature of these methods we do not discuss the details here.

Descriptive and Empirical Analysis

Descriptive Analysis

Table 1 and 2 below compare the basic stats of the data. Higher mean and deviation values of Growth, Happiness, Physical Capital and TIC indicate the differences taking place due to time. So we conclude that the time variant property holds for these data, because in the stats of table two the high scoring countries of Europe and North America are also included. The correlation between growth, happiness and TIC are statistically insignificant and are negative. The covariance and correlation between physical capital and growth is theoretical. Happiness is significantly correlated with Physical capital, social capital and TIC. However, highest degree of correlation exists between happiness and social capital.

Table 1

Descriptive Statistics: Panel Data of Asian Economies

	Growth	Happiness	Physical Capital	SC	TIC
Mean	4.907	6.483	26.627	5.258	4.351
Median	5.077	6.409	26.303	5.327	4.283
Maximum	15.240	8.454	67.984	6.896	5.677
Minimum	-9.779	4.639	1.524	3.408	2.946
Std. Dev.	2.958	0.780	9.254	0.686	0.646
Skewness	-0.586	0.479	1.025	-0.447	0.068
Kurtosis	7.611	3.954	6.927	3.523	2.364
Jarque-Bera	122.594	9.900	106.281	5.805	2.294
Probability	0.000	0.007	0.000	0.055	0.318
Sum	637.854	842.845	3461.528	683.575	565.654
Sum Sq. Dev.	1129.033	78.384	11047.140	60.750	53.881
Observations	130	130	130	130	130

Table 2
Descriptive Statistics: Cross-sectional Data (136 countries included)

	Growth	Happiness	Physical Capital	SC	TIC
Mean	3.520	6.370	16.801	5.324	4.020
Median	3.606	6.370	17.184	5.252	3.911
Maximum	9.754	8.964	40.530	7.222	5.528
Minimum	-2.914	3.883	0.000	3.519	2.888
Std. Dev.	2.293	1.508	6.393	0.853	0.641
Skewness	0.078	-0.063	0.369	0.238	0.651
Kurtosis	3.079	1.713	5.159	2.310	3.198
Jarque-Bera	0.097	5.291	16.492	2.221	5.500
Probability	0.953	0.071	0.000	0.329	0.064
Sum	267.490	484.109	1276.887	404.616	305.502
Sum Sq. Dev.	394.501	170.591	3065.201	54.591	30.849

So in this initial part of analysis we confirm the Easterlin Paradox (discussed in section 2 above). Surprisingly, though statistically significant, but very small magnitude of correlation is observed between Social and Physical capital. The differences in the figures are obvious in panel and cross-sectional data. The lower values of all the correlations indicate that the time variant properties of data hold for panel. In cross-sectional data, the happiness growth correlation is still negative and but highly significant. The correlation between Social capital and growth indicates negative sign and shows that in large cross country data the negative correlation holds between SC and growth. By surprise holding time constant (over the cross-sectional data) the correlation between K and G is negative indicative of the heterogeneity in the cross-sectional units. TIC, SC and H are highly correlated. These results will be important for discussion in empirical section below.

Table 3
Covariance Analysis: Panel Data of Asian Economies

		G	H	K	SC	TIC
Growth (G)	Covariance	8.684871				
	Correlation	1.000000				
	Covariance	-0.099990	0.602950			
Happiness (H)	Correlation	-0.043695	1.000000			
	t-Statistic	-0.494829	-----			
	Covariance	12.32286	1.544739	84.97797		
Physical Capital (K)	Correlation	0.453604	0.215805	1.000000		
	t-Statistic	5.758441	2.500473	-----		
	Covariance	0.407199	0.401261	1.375448	0.467307	
Social Capital (SC)	Correlation	0.202127	0.755935	0.218268	1.000000	
	t-Statistic	2.335001	13.06420	2.530430	-----	
	Covariance	-0.004050	0.336925	1.018819	0.210151	0.414472
TIC	Correlation	-0.002135	0.673976	0.171671	0.477509	1.000000
	t-Statistic	-0.024153	10.32166	1.971500	6.148688	-----

Note: The italic and bold figures are significant statistically.

Empirical Analysis: Results and Discussion

Before estimating the reduced-form model, both parametric and non-parametric panel unit roots tests are employed to test stationarity in the concerning variables of present study (Hafeez et al., 2018). The results are compared in table 4. We can infer that all the series are stationary at level in almost all four cases except social capital. This series is non stationary in IPS test only; otherwise the null of unit root is rejected in rest of the three tests. So our empirical analysis based on the Fixed and random effects is valid for equations 1-3 in section 3 above.

Table 4
Panel Unit Root Tests (Comparison Table)

Variables	Test Type (Stats and Level)				Conclusion
	<i>Im, Pasaran & Shin</i>	<i>Levin, Lin & Chu</i>	<i>Phillips-Perron</i>	<i>Hadri</i>	
Growth	-19.650 I(0)	-27.064 I(0)	185.83 I(0)	6.209 I(0)	I(0)
Physical Capital	-2.45 I(0)	-6.099 I(0)	81.465 I(0)	10.56 I(0)	I(0)
Social Capital	-1.51 I(1)	-2.345 I(0)	76.457 I(0)	7.797 I(0)	I(0)
Happiness	-13.802 I(0)	-1.739 I(0)	73.263 I(0)	8.296 I(0)	I(0)
TIC	-3.209 I(0)	-7.861 I(0)	99.457 I(0)	7.124 I(0)	I(0)

We have estimated three equation of the model using three methods. The variations in the results make it of prime interest for sociologists and economists both. The social capital is growth enhancing and any increase in any of the dimension of the social capital statistically leads to growth more than two percent in fixed effects, about one percent over the random effect and about half percent when the moment conditions are applied. This deviation in the results signifies that social capital is more effective along the individual characteristics of the sample countries because fixed effects capture all the effects of geography, endowment and any other factor.

So for Asian economies it is concluded that the individual specific factors of social capital contribute more to growth. The magnitude of physical capital coefficient is relatively consistent for economic growth although has lower level of confidence for fixed and random effects. TIC index does not have statistically significant impact on country level fixed effects but has negative and statistically significant impact on growth if one uses random effects model on these selected Asian economies. It means for the sample economies the spillover effect of talent through human capital on growth is not effective for individual characteristics. However, over the periods, the effect of TIC is growth retarding. The generalized methods of moment results do not differentiate from those of random effects in direction, but different in magnitude. J-stat shows that the restriction employed are valid.

For Social capital, the direction and magnitude of the β coefficients (equation 2) are similar in FE and RE models. So relatively, consistency holds for social capital in both methods, but not for GMM. In GMM model the growth is restrictive to social capital. However, physical capital does not have significant impact on social capital in FE and RE models. A little evidence of efficacy of K for SC is observed in GMM. TIC contributes positively towards the attainment of social capital of Asian economies. We have found a strong evidence of social capital and happiness relationship, as we presumed in section 2 above in all estimates of the equation 3. Nonetheless the physical capital and growth both have negative and statistically less significant effect on happiness. TIC is effective in generalizing the happiness along with the factors of cross-section and period specific.

Table 5
Empirical Findings

Dependent Variables	Growth			Social Capital (SC)			Happiness		
	FE	RE	GMM	FE	RE	GMM	FE	RE	GMM
C	-11.277 (-1.2799)	6.816* (3.3565)	1.239 (0.521)	3.749* (7.1634)	3.6653* (7.021)	6.768* (10.691)	0.338 (0.8433)	0.585 (1.102)	1.104* (3.060)
Social Capital	2.112** (1.7355)	0.967* (3.0105)	1.75* (5.14)	--	--	--	(1.016)* (13.573)	0.869* (9.430)	0.572* (7.457)
Physical Capital	0.1143** (1.7168)	0.1968** (1.8868)	.1447* (7.42)	0.0032 (1.0755)	0.0027 (0.9202)	0.261** (1.698)	- 0.0092** (-2.371)	-0.005** (-1.581)	0.006 (0.545)
TIC	0.467650 (0.2615)	-2.812* (-6.4695)	-1.43* (-5.774)	0.3112* (2.7569)	0.3366* (3.0341)		0.254* (3.066)	0.351* (6.579)	0.511* (6.218)
Growth	--	--	--	0.0143* (3.333)	0.01165* (3.465)	-0.101* (-2.021)	- 0.0117** (-1.807)	-0.015* (-3.927)	--
F-Stat	4.85	3.90	J-Stat: 0.00	59.767	67.49	J-Stat: 0.572	73.96	43.85	J-Stat: 0.79
DW	1.80	1.67		1.44	1.49		1.45	1.06	
R ²	0.615	0.52	0.339	0.951	0.949	0.719	0.962	0.584	0.706

Note: * and ** indicate statistically significant at 5% and 10% level of significance, respectively. t-stat in the parentheses

Summary and Implications

We can summarize our results in theoretical perspective for policy implication as follows:

- i. The growth is capital oriented, whether physical or social. Thus we can answer the question we pondered in section one into Yes. The social capital is like all other economic capital a growth enhancing factor.

- ii. The significant income effect outweighs the little substitution effect of trade-off between social and physical capital. In this case the efforts exerted for physical capital accumulation reduces the attainment of social capital.
- iii. The debate among the scholars inferred that there was a need to find “something other than GDP” for the happiness, we found it a robust hypothesis and can imply that it is beneficial for the Asian economies to dedicate some policy efforts for the happiness and subjective-wellbeing of the societies. Some alternatives to be assumed are the role of social capital, social tolerance, political freedom, religiosity and health.
- iv. The results also imply that the efforts to grow reduce the happiness that is consistent with the theory of real business cycle. This shows that respective loss to happiness due to growth is higher than the gains.

In nutshell, we conclude that the Asian economies should emphasize more arguments in their objective function of social welfare, by limiting the role of GDP. The happiness is more than (merely) an income phenomenon.

Reference

- Abraham, J., Drake, C., Sacks, D. W., & Simon, K. (2017). Demand for health insurance marketplace plans was highly elastic in 2014–2015. *Economics Letters*, 159, 69-73.
- Ahn, T. K. (2003). *Foundations of social capital* (No. 302 F6).
- Bartolini, S., Bilancini, E., & Sarracino, F. (2009). *Social capital predicts happiness: World-wide evidence from time series*. Università di Siena.
- Becchetti, L., Pelloni, A., & Rossetti, F. (2008). Relational goods, sociability, and happiness. *Kyklos*, 61(3), 343-363.
- Becchetti, L., Ricca, E. G., & Pelloni, A. (2009). The 60s turnaround as a test on the causal relationship between sociability and happiness. Working papers wp07, *Econometrica*
- Bourdieu, P. (2011). The forms of capital.(1986). *Cultural theory: An anthology*, 1, 81-93.
- Bronisz And Heijman (2009). The Impact of Social Capital on The Regional Growth and Competitiveness in Poland. Paper Prepared for Presentation at *The 113th EAAE Seminar Belgrade, Republic of Serbia* December 9-11, 2009
- Brown, L. D., & Ashman, D. (1996). Participation, social capital, and intersectoral problem solving: African and Asian cases. *World development*, 24(9), 1467-1479.
- Bruni, L., & Stanca, L. (2008). Watching alone: relational goods, television and happiness. *Journal of Economic Behavior & Organization*, 65(3-4), 506-528.
- Clark, A. E., Frijters, P., & Shields, M. A. (2008). Relative income, happiness, and utility: An explanation for the Easterlin paradox and other puzzles. *Journal of Economic literature*, 46(1), 95-144.
- Clark, A. E., & Georgellis, Y. (2013). Back to baseline in Britain: adaptation in the British household panel survey. *Economica*, 80(319), 496-512.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American journal of sociology*, 94, S95-S120.

- Deaton, A. (2012). The financial crisis and the well-being of Americans 2011 OEP Hicks Lecture. *Oxford economic papers*, 64(1), 1-26.
- Decarolis, F., Polyakova, M., & Ryan, S. P. (2015). The welfare effects of supply-side regulations in Medicare Part D. *NBER Working Paper*, 21298.
- Diener, E. (1984). Subjective well-being. *Psychological bulletin*, 95(3), 542.
- Duesenberry, J. S. (1949). *Income, Savings and the Theory of Consumer Behaviour*. Harvard University Press, Cambridge, MA.
- Easterlin, R. A., McVey, L. A., Switek, M., Sawangfa, O., & Zweig, J. S. (2010). The happiness–income paradox revisited. *Proceedings of the National Academy of Sciences*, 107(52), 22463-22468.
- Frederick, S., & Loewenstein, G. (1999). 16 Hedonic Adaptation. *Well-being: The foundations of hedonic psychology*, 302-329.
- Gilbert, D. T. (1998). Ordinary personology. *The handbook of social psychology*, 2, 89-150.
- Gilbert, D. T. (2002). Inferential correction. *The psychology of judgment: Heuristics and biases*, 167-184.
- Glaeser, E. L., Laibson, D., & Sacerdote, B. (2002). An economic approach to social capital. *The economic journal*, 112(483), F437-F458.
- Hafeez, M., Chunhui, Y., Strohmaier, D., Ahmed, M., & Jie, L. (2018). Does finance affect environmental degradation: evidence from One Belt and One Road Initiative region?. *Environmental Science and Pollution Research*, 25(10), 9579-9592.
- Helliwell, John F., and Robert D. Putnam. "The social context of well-being." *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences* 359.1449 (2004): 1435-1446.
- Kahneman, D., & Krueger, A. B. (2006). Developments in the measurement of subjective well-being. *Journal of Economic perspectives*, 20(1), 3-24.
- Knack, S. (2003). Groups, growth and trust: cross-country evidence on the Olson and Putnam hypotheses. *Public Choice*, 117(3-4), 341-355.
- Knack, S. (1999). Social capital, growth and poverty: a survey and extensions. *Social Capital Initiative Working Paper, Social Development Department. Washington, DC: World Bank*.
- Knack, S., & Keefer, P. (1997). Does social capital have an economic payoff? A cross-country investigation. *The Quarterly journal of economics*, 112(4), 1251-1288.
- Kreps, D. M. (1997). Intrinsic motivation and extrinsic incentives. *The American Economic Review*, 87(2), 359-364.
- Krishna, A., & Uphoff, N. (2002). Mapping and measuring social capital through assessment of collective action to conserve and develop watersheds in Rajasthan, India. *The role of social capital in development: An empirical assessment*, 85-124.
- Loewenstein, G. (1994). The psychology of curiosity: A review and reinterpretation. *Psychological bulletin*, 116(1), 75.
- Loewenstein, G., & Schkade, D. (1999). Wouldn't it be nice? Predicting future feelings. *Well-being: The foundations of hedonic psychology*, 85-105.

- Loewenstein, G., & Ubel, P. A. (2008). Hedonic adaptation and the role of decision and experience utility in public policy. *Journal of Public Economics*, 92(8-9), 1795-1810.
- Loewenstein, G., O'Donoghue, T., & Rabin, M. (2003). Projection bias in predicting future utility. *the Quarterly Journal of economics*, 118(4), 1209-1248.
- Ostrom, E. (2009). What is social capital. *Social capital: Reaching out, reaching in*, 17-38.
- Oswald, A. J. (1997). Happiness and economic performance. *The economic journal*, 107(445), 1815-1831.
- Portela, M., Neira, I., & del Mar Salinas-Jiménez, M. (2013). Social capital and subjective wellbeing in Europe: A new approach on social capital. *Social Indicators Research*, 114(2), 493-511.
- Putnam, R. D., Leonardi, R., & Nanetti, R. Y. (1994). *Making democracy work: Civic traditions in modern Italy*. Princeton university press.
- Truyts, T. (2010). Social status in economic theory. *Journal of Economic Surveys*, 24(1), 137-169.

Appendix

List of Asian Economies included in the Sample

Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Iran, Israel, Japan, Jordan, Korea, Laos, Lebanon, Malaysia, Mongolia, Nepal, Oman, Pakistan, Philippines, Saudi Arabia, Singapore, Thailand, United Arab Emirates, Vietnam, Yemen

MODERATION MEDIATION FRAMEWORK FOR ENTERPRISE RISK MANAGEMENT AND PERFORMANCE OF ISLAMIC BANKS OF PAKISTAN

Waqas Ali¹, Irfan Haider Shakri² and Muhammad Masood Khan³

Abstract

In the present dynamic market, most organization invest in colossal budget to gain a competitive edge and to enhance firm performance. Most of prior researches examined distant determinant of the competitive edge and the firm performance. The ongoing study focused on two components of the business strategy i.e. cost leadership strategy and differentiation strategy and two determinants of firm performance (financial performance and organization learning growth). Furthermore, the core objective of study to inspect the mediation of cost leadership strategy as well as differentiation strategy between Enterprise Risk Management (ERM) practices and Islamic bank performance. Financial literacy plays an intervening role between ERM practices and cost leadership strategy (CLS) and differentiation strategy (DS). Structured questionnaires employed for data collection, from the managers through a convenience sampling method. Structural equation modeling analysis employed to test the hypothesis. Results found positive and significant impact of the ERM practices on Islamic bank performance through cost leadership strategy but insignificant in differentiation strategy. Financial literacy (FL) found a significant negative effect on DS and CLS. This study has some limitations such as convenience sampling method employed for data collection which influence the generalizability of findings.

Keywords: Enterprise Risk Management, Cost Leadership Strategy, Differentiation Strategy, Banks Performance, Financial Literacy.

JEL Classification: G210

¹ Limkokwing University of Creative Technology, Cyberjaya, Malaysia .Email: Waqas_ali1125@yahoo.com

² School of Business and Law, Edith Cowan University, Western, Australia.Email: Ishakri@our.ecu.edu.au

³ Limkokwing University of Creative Technology,Cyberjaya, Malaysia.Email: zarqash222@yahoo.com

Introduction

ERM has grown since in the 1990s when enterprises face numerous surprises in the competitive environment (Arena, Arnaboldi, & Azzone, 2010). These shocks illustrated that financial crisis worldwide which created importance of the risk management practices (Coskun, 2013). Risk management is an essential concern in challenging worldwide environment. Risk knew to be the prime mover for institutions and individuals (Ali, Lu, & Wang, 2013). In recent years, most of the firm focused management of risk effectively and inefficiently manners (Farooq et al., 2019; Farooq & Raju, 2019). Some researcher believed that ERM practices directly influence on organizational performance (Florio & Leoni, 2017; Zou & Hassan, 2017). Contrarily, some researcher consider some other internal factors that influence the association between ERM and Organizational performance (Khan & Ali, 2017). A plethora of researchers conducted to investigated the importance of ERM practices in business (Bohnert, Gatzert, Hoyt, & Lechner, 2019; Yilmaz & Flouris, 2017).

ERM is a procedure to identify and assess risk which has an impact on the firms' value. To meet these challenges organization implemented several approaches to manage risk and create fruitful risk management strategy (Meulbroek, 2002). ERM defined as a system to organize, measure, control, monitor and respond to the risk (Farrell & Gallagher, 2015). The leading goal of ERM practices is to augment the value for shareholders (Hoyt & Liebenberg, 2011). Furthermore, risk management enhances profitability and revenue for the organization. Islamic banks comparatively pay not much attention to Enterprise risk management practices. Moreover, few studies conducted on Erm and performance of the organization in under developing economies. None of the studies conducted before to determined ERM practices of Islamic banks of Pakistan.

ERM plays a very significant role in every day organizational practices as well as business activities to help businesses to control and manage their internal system. ERM practices crucial to respond any business threat in the better way and ensure getting benefits from the opportunities which are also helpful for organization to gain the competitive advantage (Armeanu, Vintilă, Gherghina, & Petrache, 2017). Enterprise risk management is very crucial for top management to effectively manage several kinds of risks (Annamalah, Raman, Marthandan, & Logeswaran, 2018).

According to the governor of state bank of Pakistan, Islamic bank should need to enhance risk management practices and transparency which can help to immunized from the risk (Bajwa, 2018). So, it is necessary to determine the impact of the ERM practices on the Islamic bank's performance in Pakistan.

The novelty of this paper is previous studies utilized competitive advantage as the whole mediation variable between ERM on the firm performance. This paper examined two main compo-

nents of competitive advantage the first component is differentiation strategy and the second component is cost leadership strategy separately. Moreover, there is no study conducted before to examine the firm performance of Islamic banks of Azad Kashmir. Additionally, this research further contributes to the literature section. This study beneficial for the bank's manager and owner to focused on ERM practices as well as financial literacy and components of competitive advantage.

The fundamental goal of present study investigates the impact of the ERM practices on the Islamic bank performance through mediating role of differentiation and cost leadership strategy, financial literacy recompense moderating role in current framework.

Literature Review

ERM and banks performance

In today's worldwide businesses risk management is a fundamental concern for any business (Gordon, Loeb, & Tseng, 2009). Aabo, Fraser, and Simkins (2005) risk can turn into a great occasion if the deal in efficient manners. business enterprise risk management has same meanings as in strategic risk management, holistic risk management, integrated risk management, corporate risk management, business risk management and the broad ERM (Manab, Kassim, & Hussin, 2010). ERM is an efficient and competent instrument which different organization is using to reduce risks (Culp, 2002). ERM not only enhances the financial performance of the organization but also reduce associated risks (Florio & Leoni, 2017). There is some evidence available in real life; ERM relies on the competitive edge (Stulz, 1996). There is dearth studies conducted about the impact of ERM practices on the performance of firm (Khan & Ali, 2017).

Silva, Silva, and Chan (2019) conducted a study to testify the association between the ERM and the firm value. Study found ERM practices has positive and significant link with firm value. The study found a significant association between ERM practices and SME performance in the presence of competitive edge as mediation and financial literacy as moderator variable (Yang, Ishtiaq, & Anwar, 2018). Furthermore, the study illustrated that enterprise risk management has an association with firm performance with interaction impact of intellectual capital (Khan, Ali, Anjum, & Noman, 2019). They also suggested enterprise risk management implementation has positively associated with firm performance in Italian organizations (Florio & Leoni, 2017). Battaglia, Fiordelisi, and Ricci (2016) found that ERM has positive and significantly reduce risk and increase risk-adjusted performance during the financial crisis in eastern Europe. Undoubtedly there is a notable link between the ERM practices and the Performance of firm (Callahan & Soileau, 2017; Zou & Hassan, 2017). Contrarily, Eikenhout (2015) evaluated a study in Dutch insurance companies and found no remarkable link between ERM and the firm performance. Moreover, the study also did not find any impact of ERM on organization performance (Şenol & Karaca, 2017). Following hypothesis formulated based on above discussion.

H1: There is a positive influence of ERM practices on Islamic bank performance.

ERM and Cost Leadership Strategy

Business strategies outlined with purpose of internal as well as external valuation of the company. The enterprises can get a competitive advantage based on different strategies. These strategies includes CLS, DS and the FS (Porter, 1980). The current study focused on two competitive advantage strategies (CLS and DS). CLS accentuates for those customers satisfaction who are seeking low-cost product. This strategy divided into segments. First, Products or services offered to the customer at the minimum price available in the market. On the other hand, the second segment is the best product or services offered to the customers at the best available price in the market.

According to Brustbauer (2016), ERM practices significantly influence on strategic decisions which leads to organizational performance. Diversely, ERM practices don not influence directly on the organization's value, but some internal factors influence on the relationship (Chang, Yu, & Hung, 2015). According to Zou and Hassan (2017) ERM practices helpful for curtail of different associated costs (cash flow management, asset management, and inventory management). Reduction of all cost leads to enhance the organization's performance (Zou & Hassan, 2017). The study found that the positive link between the ERM practices and cost leadership strategy and differentiation (Soltanizadeh, Abdul Rasid, Mottaghi Golshan, & Wan Ismail, 2016)

H2: There is a positive influence of ERM practices on the cost leadership strategy.

Cost Leadership Strategy and Organization Performance

Frigo and Anderson (2012) explained three major components of COSO's enterprise risk management definition which is akin to the strategy. The first component of ERM must be linked with the strategy of the company effectively. Second, ERM designed to identify the circumstances which influence the performance of the company. Conclusively, ERM and strategies should be parallel. This is exactly strategic risk management come in. Third, the aim of ERM is to provide an assertion that the firm accomplishes its goal. According to Soltanizadeh et al. (2016) found a significant association between the CLS and the firm performance of listed companies in Malaysia. Furthermore, the study found a positive association between organizational performance and CLS in the hotel industry of Malaysia (Hilman & Kaliappen, 2014). Additionally, the study found that positive effect of the CLS and performance of Kenyan manufacturing firms (Wamalwa, 2018).

Contrarily, the study found there was no link between differentiation and cost leadership strategy with organization performance (Nandakumar, Ghobadian, & O'Regan, 2011). Moreover, the study also revealed that cost leadership strategy and the differentiation has no association found with the firm performance of Thailand manufacturing firms (Seedee, Sulaiman, & Ismail, 2009).

H3: There is a positive effect of the cost leadership strategy on the Islamic bank performance.

ERM and differentiation strategy

Differentiation is Porter (1980) strategy which accentuates offering inimitable product or services at a relative price to the customers. Enterprise risk management system imperative for decision making and controlling. ERM practices not only crucial for the financial performance but also essential for the non-financial performance of the organization (Zaleha Abdul Rasid, Ruhana Isa, & Khairuzzaman Wan Ismail, 2014). It is asserted execution of ERM practices to organization successfully can lead to success. ERM practices helps to curtail operational cost and accounting cost. Conclusively, Organization executes a distant process to achieve competitive advantage. In this process, ERM practices utilized for shrinkage of different associated risks and expedited a firm's competitive advantage satisfactory (Elahi, 2013). Following hypothesis formulated based on above discussion.

H4: There is a positive impact of ERM practices and the differentiation strategy.

Differentiation Strategy and Organizational Performance

Cost leadership strategy executes at the lower level organization and differentiation strategy performed at the higher level company (Kim, Nam, & Stimpert, 2004). Kumar, Subramanian, and Strandholm (2002) identified that hospital utilized a differentiation strategy and have a stronger market inclination as compared to the CLS. Market orientation leads to differentiation performance as compared to cost leadership. Furthermore, Spencer, Joiner, and Salmon (2009) determine the positive link between the determinant of DS (product flexibility and customer service) and the performance of the firm. Wamalwa (2018) examined the positive impact of differentiation on the performance of Kenyan manufacturing companies.

Gorondutse and Hilman (2017) stated that positive and significant link of the DS and performance of Nigerian hotel industry. Additionally, they found the environmental munificence recompense moderating role between the link of DS and the firm performance. One more study testified positive link between differentiation strategy and the performance of Kenyan hotels (Bukirwa & KISING'U, 2017). Contrarily, Aliqah (2012) found DS does not influence on the performance of Jordanian companies.

H5: There is a positive effect of differentiation strategy on Islamic banks performance.

ERM and Financial Literacy

ERM practices not always provide a competitive edge but also need some skills which help to achieve the firm's objective (Arena et al., 2010). Well educated managers as well as directors of the firm motivated to engage in the risk reduction activities which include corporates financial policies and hedging (Dionne & Triki, 2005). According to bank association of South Africa characterize financial literacy of SMEs must have the following requirement. This qualification includes business

management skills, specific entrepreneurial competencies level, personal skills, and financial requirements and regulatory issues (Messy & Monticone, 2012). The study examined the significant association between financial literacy and ERM practices (Yang et al., 2018). Additionally, authors confirmed that qualification of managers has an impact on ERM practices and the strategies of the firm (Shanahan & McParlane, 2005). Financial education of entrepreneurs is also influenced by the association between firm performance and ERM (Herbane, 2010). Following hypothesis formulated based on above discussion.

H6: There is a significant effect of financial literacy on the relationship between enterprise risk management practices and cost leader strategies and differentiation strategy.

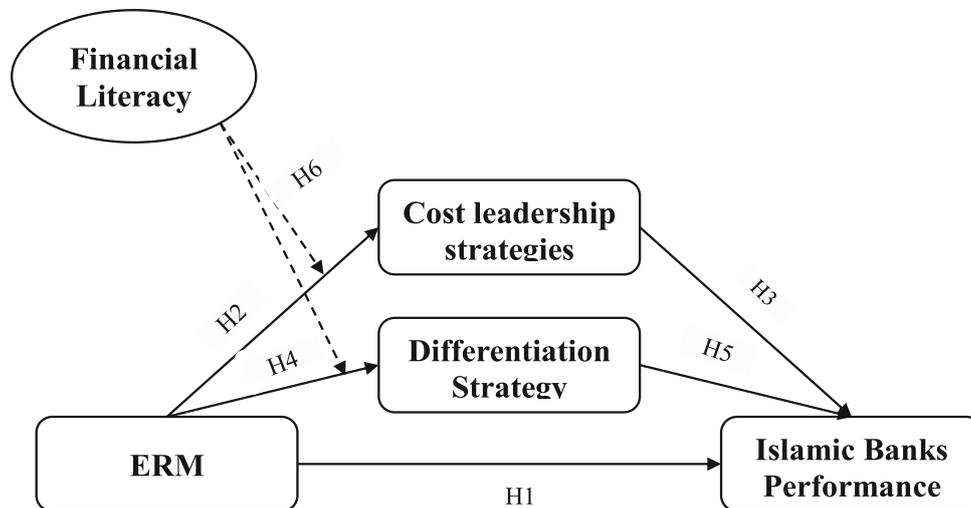


Figure 1: Conceptual Framework

Methodology

Data collected from structured questionnaires distributed among operational managers and branch managers of Islamic banks of Pakistan. This study is quantitative in nature, and the cross-sectional method is employed.

Population and sample size

The population of the current study is the managers of Islamic banks of Pakistan. Data was collected through a convenience sampling method. Questionnaires distributed among 150 operational managers and branch manager and 122 returned 118 questionnaires filled suitable.

Instrumental scale

Measurement of enterprise risk management practices nine items adopted from (Embi & Shafii, 2018). Six items adopted from (Wamalwa, 2018) developed by (Dess & Davis, 1984) to measure cost leadership strategy (Efficiency, the economy of scale and supplier relation) and differentiation strategy (customer services, marketing activities and product development). Ten items adopted from (Kaplan & Norton, 1992) study to measure Islamic banks performance (financial performance and organizational learning growth). Seven items adopted from (Okello Candiya Bongomin, Mpeera Ntayi, Munene, & Akol Malinga, 2017) study to measure financial literacy.

Analytical tool

Structural equation modeling utilized for testing of hypothesis by using SmartPLS V.3.2.8. data analysis divided into parts. In the first phase, initial data screening processed and employ CFA to check the fitness of model, reliability and discriminant validity. In the second phase, structural equation modeling employed to check the influence of enterprise risk management practices on Islamic banks performance.

Results and Discussion

Respondents of current study are the branch manager and operational manager of the Islamic banks in Pakistan. Three are approximately 102(86%) respondent was male and 16(13.6%) participants were females. There are approximately 60(50.8%) were branch manager and 58(49.2%) were operational manager participated in this survey.

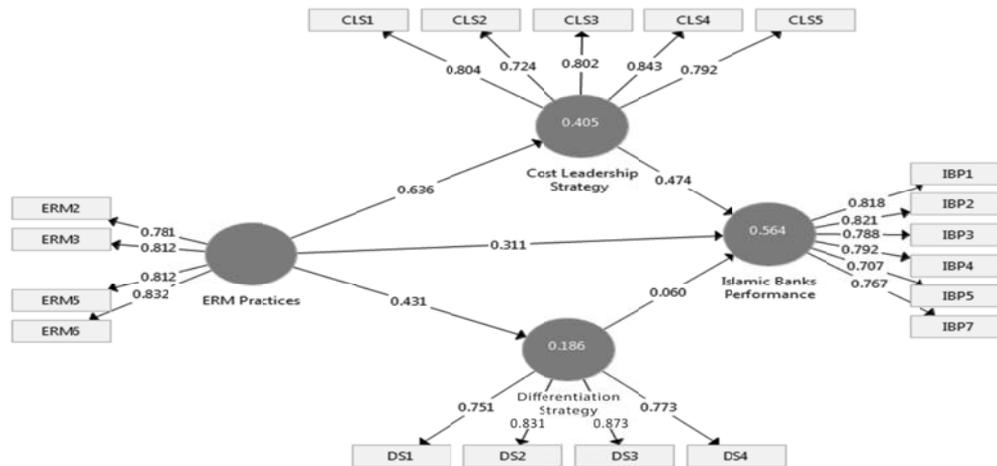


Figure 2: Structural Model

The above Figure 2 illustrates the testing of the model. According to different authors value of outer loading should >0.50, 0.60 and >0.70 (Hair, 2006). In the present study followed >0.70 outer loading threshold criteria, those items <0.70 were omitted. All those items less than the cut of the point has an effect on composite reliability (CR), Rho-A, Cronbach alpha and Average Variance Extracted (AVE). Result testified that all outer loadings >0.70 (Ramayah, Cheah, Chuah, Ting, & Memon, 2016).

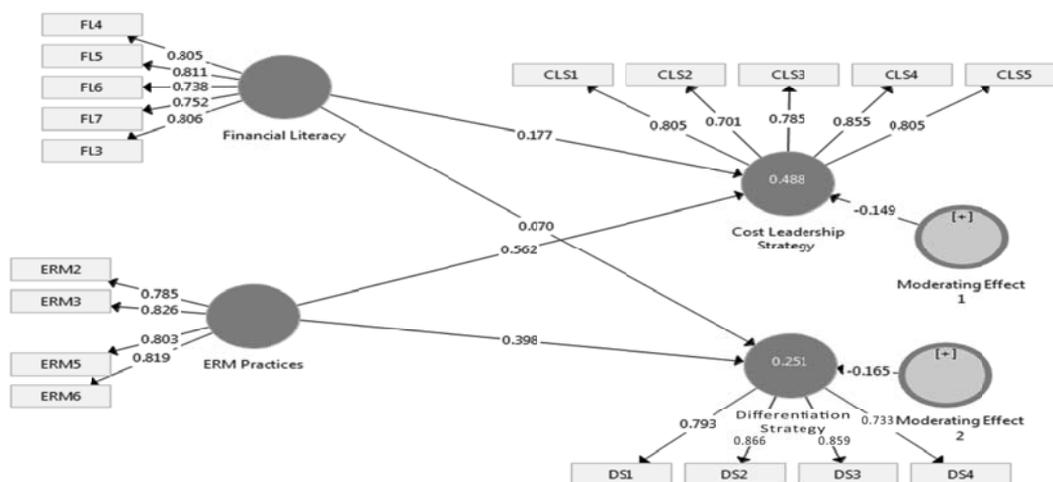


Figure 3: Structural Moderation Model

This above figure 3 shows that the moderation effect of financial literacy on cost leadership strategy and the differentiation strategy. Results reveal that significant effect of financial literacy on the cost leadership strategy as well as differentiation strategy.

Table 1
Construct Loadings

Items	Loading of items
Enterprise Risk Management 2	0.781
Enterprise Risk Management 3	0.812
Enterprise Risk Management 5	0.812
Enterprise Risk Management 6	0.832
Cost Leadership Strategy 1	0.804
Cost Leadership Strategy 2	0.724

(Table Continued....)

Cost Leadership Strategy 3	0.802		
Cost Leadership Strategy 4	0.843		
Cost Leadership Strategy 5	0.792		
Differentiation Strategy 1		0.751	
Differentiation Strategy 2		0.881	
Differentiation Strategy 3		0.873	
Differentiation Strategy 4		0.773	
Islamic Bank Performance 1			0.818
Islamic Bank Performance 2			0.821
Islamic Bank Performance 3			0.788
Islamic Bank Performance 4			0.792
Islamic Bank Performance 5			0.707
Islamic Bank Performance 7			0.767
Financial Literacy 3			0.806
Financial Literacy 4			0.805
Financial Literacy 5			0.811
Financial Literacy 6			0.738
Financial Literacy 7			0.752

The above table 1 shows that outer loading of each item in the construct. The value <0.70 omitted for better results and avert convergent as well as discriminant validity. Findings demonstrate that all outer loadings >0.70 .

Table 2

Reliability and validity of the construct

Variable	Cronbach's Alpha	Rho A	Composite Reliability	Average Variance Extracted
Enterprise Risk Management	0.826	0.832	0.884	0.656
Cost Leadership Strategy	0.855	0.871	0.895	0.630
Differentiation Strategy	0.838	0.846	0.892	0.675
Islamic Bank Performance	0.874	0.879	0.905	0.613
Financial Literacy	0.842	0.849	0.888	0.613

The above table 2 revealed that value of Cronbach's alpha > 0.70 acceptable (Nunnally, 1978), the value of Composite reliability >0.50 is acceptable and value of average variance extracted is >0.70 (Hair, Black, Babin, Anderson, & Tatham, 2006). Results indicate that enterprise risk management practices, cost leadership strategy, differentiation strategy, financial literacy, and Islamic bank performance meet the condition of the threshold.

Table 3
Fornell-Larcker Criterion

	Cost Leadership Strategy (1)	Differentiation Strategy (2)	ERM Practices (3)	Banks Performance (4)
(1)	0.794			
(2)	0.618	0.822		
(3)	0.636	0.431	0.810	
(4)	0.709	0.487	0.638	0.783

The above table 3 testified that there is no discriminant validity issue. All diagonal value > from the correlation of each variable (Fornell & Larcker, 1981). Diagonal value of each construct is the square root of Average Variance Extracted (AVE), and it should be greater than the correlation value of each construct.

Table 4
Heterotrait-Monotrait Ratio

	Cost Leadership Strategy (1)	Differentiation Strategy (2)	ERM Practices (3)	Banks Performance (4)
(1)				
(2)	0.740			
(3)	0.712	0.502		
(4)	0.799	0.571	0.739	

The above table 4 illustrates that the modern method to the assessment of the discriminant validity. There is a lack of discriminant validity when value close to 1. According to Kline (2015), value >0.85 shows lack of discriminant validity. Moreover, value >0.90 illustrates a lack of discriminant validity (Gold, Malhotra, & Segars, 2001). Results found that there is no validity issue in the framework.

Table 5
Path coefficient

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Cost Leadership Strategy -> Islamic Banks Performance	0.474	0.467	0.091	5.236	0.000
Differentiation Strategy -> Islamic Banks Performance	0.06	0.061	0.089	0.675	0.500
ERM Practices -> Cost Leadership Strategy	0.636	0.642	0.052	12.353	0.000
ERM Practices -> Differentiation Strategy	0.431	0.435	0.089	4.835	0.000
ERM Practices -> Islamic Banks Performance	0.311	0.314	0.109	2.849	0.005
Financial Literacy -> Cost Leadership Strategy	0.177	0.187	0.091	1.953	0.051
Financial Literacy -> Differentiation Strategy	0.07	0.061	0.123	0.57	0.569
Moderating Effect 1 -> Cost Leadership Strategy	-0.149	-0.139	0.066	2.241	0.025
Moderating Effect 2 -> Differentiation Strategy	-0.165	-0.144	0.071	2.304	0.022

The above table 5 shows the effect of endogenous and exogenous variables. Results indicate that there is positive and significant impact of CLS on performance of Islamic banks ($\beta=0.474$, $p<0.05$), no impact found of differentiation strategy on performance of Islamic bank ($\beta=0.060$, $p>0.05$), positive effect of ERM practices on cost leadership strategy ($\beta=0.636$, $p<0.05$), positive impact of ERM practices on differentiation strategy ($\beta=0.431$, $p<0.05$), ERM practices have a positive effect on the performance of Islamic banks ($\beta=0.311$, $p<0.05$). financial literacy has an insignificant effect on cost leadership strategy ($\beta=0.177$, $p>0.05$), financial literacy has an insignificant effect on differentiation strategy ($\beta=0.070$, $p>0.05$). there is a negative and significant moderation effect found with CLS and the DS.

Table 6
Specific Indirect effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
ERM Practices -> Cost Leadership Strategy -> Islamic Banks Performance	0.302	0.299	0.056	5.390	0.000
ERM Practices -> Differentiation Strategy -> Islamic Banks Performance	0.026	0.027	0.040	0.657	0.512

The above table 6 shows that the specific effect of ERM practices on Islamic bank performance through the mediating role of cost leadership strategy and differentiation strategy. The study found that there is a positive effect of ERM practices on Islamic bank performance through the mediating role of cost leadership strategy. Contrarily, there is an insignificant effect of ERM practices on Islamic bank performance in the presence of the differentiation strategy.

Conclusion

The core objective of current study to investigate the influence of enterprise risk management practices on the Islamic bank performance in Pakistan. Differentiation strategy and cost leadership strategy play a mediating role. The study concluded that the enterprise risk management practices has a positive and significant effect on the financial as well as non-financial performance of Islamic banks. Results also concluded that there is significant effect of ERM practices on Islamic bank performance in the presence of cost leadership strategy.

The result of present study found that there is an insignificant effect of ERM practices on Islamic bank performance through the mediating role of differentiation strategy. Financial literacy found a positive effect on Islamic bank performance. This present study found that there is an insignificant moderating effect of FL on DS and the CLS. This study recommended that the Islamic bank should focus on cost leadership strategy to enhance the financial and non-financial performance of Islamic banks. Enterprise risk management practices also help to enhanced banks performance.

This study prone some limitation such as data collected from 118 managers from different Islamic banks through convenience sampling method. This is a cross-sectional study which may affect generalizability. Future study can take other components of competitive advantage.

References

- Ali, S., Lu, W., & Wang, W. (2013). Comparison of entrepreneurial intentions among college students in China and Pakistan. *International Journal of Pluralism and Economics Education*, 4(1), 51-60.
- Aliqah, K. M. A. (2012). Differentiation and organizational performance: Empirical evidence from Jordanian companies. *Journal of Economics*, 3(1), 7-11.
- Annamalah, S., Raman, M., Marthandan, G., & Logeswaran, A. (2018). Implementation of Enterprise Risk Management (ERM) Framework in Enhancing Business Performances in Oil and Gas Sector. *Economies*, 6(1), 4.
- Arena, M., Arnaboldi, M., & Azzone, G. (2010). The organizational dynamics of enterprise risk management. *Accounting, Organizations and Society*, 35(7), 659-675.
- Armeanu, D., Vintilă, G., Gherghina, Ș., & Petrache, D. (2017). Approaches on Correlation between Board of Directors and Risk Management in Resilient Economies. *Sustainability*, 9(2), 173.
- Bajwa, T. (2018). Islamic banking should improve risk management practices. Retrieved from <https://www.dawn.com/news/1451111>
- Battaglia, F., Fiordelisi, F., & Ricci, O. (2016). Enterprise Risk Management and Bank Performance: Evidence from Eastern Europe during the Financial Crisis *Risk Management in Emerging Markets: Issues, Framework, and Modeling* (pp. 295-334): Emerald Group Publishing Limited.
- Bohnert, A., Gatzert, N., Hoyt, R. E., & Lechner, P. (2019). The drivers and value of enterprise risk management: evidence from ERM ratings. *The European Journal of Finance*, 25(3), 234-255.
- Brustbauer, J. (2016). Enterprise risk management in SMEs: Towards a structural model. *International Small Business Journal*, 34(1), 70-85.
- Bukirwa, S., & KISING'U, M. T. (2017). influence of competitive strategies on organizational performance of hotels in kenya (a survey of hotels in Mombasa county). *Strategic Journal of Business & Change Management*, 4(2), 138-158.
- Callahan, C., & Soileau, J. (2017). Does enterprise risk management enhance operating performance? *Advances in accounting*, 37, 122-139.
- Chang, C.-S., Yu, S.-W., & Hung, C.-H. (2015). Firm risk and performance: the role of corporate governance. *Review of Managerial Science*, 9(1), 141-173.
- Coskun, Y. (2013). Financial engineering and engineering of financial regulation: Guidance for compliance and risk management. *Journal of Securities Operations & Custody*, 6(1), 81-94.
- Culp, C. L. (2002). The revolution in corporate risk management: A decade of innovations in process and products. *Journal of Applied Corporate Finance*, 14(4), 8-26.
- Dess, G. G., & Davis, P. S. (1984). Porter's (1980) generic strategies as determinants of strategic group membership and organizational performance. *Academy of Management journal*, 27(3), 467-488.
- Dionne, G., & Triki, T. (2005). Risk management and corporate governance: The importance of

- independence and financial knowledge for the board and the audit committee. *Cahier de recherche/Working Paper*, 5, 15.
- Eikenhout, L. (2015). *Risk management and performance in insurance companies*. University of Twente.
- Elahi, E. (2013). Risk management: the next source of competitive advantage. *Foresight*, 15(2), 117-131.
- Embi, S., & Shafii, Z. (2018). The Impact of Shariah Governance and Corporate Governance on the Risk Management Practices: Evidence from Local and Foreign Islamic Banks in Malaysia. *The Journal of Muamalat and Islamic Finance Research*, 1-20.
- Farooq, M., & Raju, V. (2019). Impact of over-the-top (OTT) services on the telecom companies in the era of transformative marketing. *Global Journal of Flexible Systems Management*, 20(2), 177-188.
- Farooq, M., & Raju, V. (2019). Want to Stay the Market Leader in the Era of Transformative Marketing? Keep the Customers Satisfied!. *Global Journal of Flexible Systems Management*, 20(3), 257-266.
- Farrell, M., & Gallagher, R. (2015). The valuation implications of enterprise risk management maturity. *Journal of risk and insurance*, 82(3), 625-657.
- Florio, C., & Leoni, G. (2017). Enterprise risk management and firm performance: The Italian case. *The British Accounting Review*, 49(1), 56-74.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, 18(1), 39-50.
- Frijo, M. L., & Anderson, R. J. (2012). *Strategic risk management: the new core competency*: John Wiley & Sons Limited.
- Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of management information systems*, 18(1), 185-214.
- Gordon, L. A., Loeb, M. P., & Tseng, C.-Y. (2009). Enterprise risk management and firm performance: A contingency perspective. *Journal of Accounting and Public Policy*, 28(4), 301-327.
- Gorodutse, A. H., & Hilman, H. (2017). Influence of differentiation strategy on performance of hotels: the moderating role of environmental munificence. *Journal of Business and Retail Management Research*, 11(4).
- Hair, J. F. (2006). *Multivariate data analysis*: Pearson Education India.
- Herbane, B. (2010). Small business research: Time for a crisis-based view. *International Small Business Journal*, 28(1), 43-64.
- Hilman, H., & Kaliappen, N. (2014). Do cost leadership strategy and process innovation influence the performance of Malaysia hotel industry? *Asian Social Science*, 10(10), 134.
- Hoyt, R. E., & Liebenberg, A. P. (2011). The value of enterprise risk management. *Journal of risk and insurance*, 78(4), 795-822.
- Kaplan, R. S., & Norton, D. P. (1992). The Balanced Scorecard: measures that drive performance. *Harvard Business Review*, 1.
- Khan, S. N., & Ali, E. I. E. (2017). The moderating role of intellectual capital between enterprise

- risk management and firm performance: A conceptual review. *American Journal of Social Sciences and Humanities*, 2(1), 9-15.
- Khan, S. N., Ali, E. I. E., Anjum, K., & Noman, M. (2019). Enterprise Risk Management and Firm Performance in Pakistan: Interaction effect of intellectual capital. *Int. J. of Multidisciplinary and Current research*, 7.
- Kim, E., Nam, D.-i., & Stimpert, J. (2004). Testing the applicability of Porter's generic strategies in the digital age: A study of Korean cyber malls. *Journal of Business Strategies*, 21(1).
- Kline, R. B. (2015). *Principles and practice of structural equation modeling*: Guilford publications.
- Kumar, K., Subramanian, R., & Strandholm, K. (2002). Market orientation and performance: does organizational strategy matter? *Journal of applied business research*, 18(1), 37-50.
- Manab, N. A., Kassim, I., & Hussin, M. R. (2010). Enterprise-wide risk management (EWRM) practices: between corporate governance compliance and value. *International Review of Business Research Papers*, 6(2), 239-252.
- Messy, F.-A., & Monticone, C. (2012). The status of financial education in Africa.
- Meulbroek, L. K. (2002). A senior manager's guide to integrated risk management. *Journal of Applied Corporate Finance*, 14(4), 56-70.
- Nandakumar, M., Ghobadian, A., & O'Regan, N. (2011). Generic strategies and performance—evidence from manufacturing firms. *International Journal of productivity and performance management*, 60(3), 222-251.
- Nunnally, J. C. (1978). *Psychometric Theory: 2d Ed*: McGraw-Hill.
- Okello Candiya Bongomin, G., Mpeera Ntayi, J., Munene, J. C., & Akol Malinga, C. (2017). The relationship between access to finance and growth of SMEs in developing economies: Financial literacy as a moderator. *Review of International Business and Strategy*, 27(4), 520-538.
- Porter, M. (1980). *Competitive Strategy. Techniques for Analysing Industries and Competitors* The Free Press, A Division of Macmillan: Inc.
- Ramayah, T., Cheah, J., Chuah, F., Ting, H., & Memon, M. A. (2016). *Partial least squares structural equation modeling (PLS-SEM) using SmartPLS 3.0: An updated and practical guide to statistical analysis*: Pearson Singapore.
- Seedee, R., Sulaiman, M., & Ismail, I. (2009). *Business strategies and performance of ceramic manufacturing in Thailand*. Paper presented at the 8th Asian Academy of Management International Conference Proceedings.
- Şenol, Z., & Karaca, S. S. (2017). The effect of enterprise risk management on firm performance: A case study on Turkey. *Financial Studies*, 21(2).
- Shanahan, P., & McParlane, J. (2005). Serendipity or strategy? An investigation into entrepreneurial transnational higher education and risk management. *On the Horizon*, 13(4), 220-228.
- Silva, J. R., Silva, A. F. d., & Chan, B. L. (2019). Enterprise Risk Management and Firm Value: Evidence from Brazil. *Emerging Markets Finance and Trade*, 55(3), 687-703.
- Soltanizadeh, S., Abdul Rasid, S. Z., Mottaghi Golshan, N., & Wan Ismail, W. K. (2016). Business strategy, enterprise risk management and organizational performance. *Management Research*

- Review*, 39(9), 1016-1033.
- Spencer, X. S. Y., Joiner, T. A., & Salmon, S. (2009). Differentiation strategy, performance measurement systems and organizational performance: Evidence from Australia. *International Journal of Business*, 14(1), 83.
- Stulz, R. M. (1996). Rethinking risk management. *Journal of Applied Corporate Finance*, 9(3), 8-25.
- Wamalwa, L. S. (2018). *Perceived Effect of Total Quality Management on the Relationship between Generic Strategies and performance of Kenyan manufacturing firms*. JKUAT-COHRED.
- Yang, S., Ishtiaq, M., & Anwar, M. (2018). Enterprise Risk Management Practices and Firm Performance, the Mediating Role of Competitive Advantage and the Moderating Role of Financial Literacy. *Journal of Risk and Financial Management*, 11(3), 35.
- Yilmaz, A. K., & Flouris, T. (2017). Enterprise risk management in terms of organizational culture and its leadership and strategic management *Corporate risk management for international business* (pp. 65-112): Springer.
- Zaleha Abdul Rasid, S., Ruhana Isa, C., & Khairuzzaman Wan Ismail, W. (2014). Management accounting systems, enterprise risk management and organizational performance in financial institutions. *Asian Review of Accounting*, 22(2), 128-144.
- Zou, X., & Hassan, C. H. (2017). Enterprise risk management in China: the impacts on organisational performance. *International Journal of Economic Policy in Emerging Economies*, 10(3), 226-239.

DETERMINANTS OF HOUSEHOLD'S PREFERENCES FOR SAFE DRINKING WATER IN PAKISTAN

Naeem Akram¹ and Abdul Khaliq²

Abstract

The availability of clean drinking water is referred as one of the basic human right, due to the fact that drinking of unsafe water results in various waterborne diseases especially diarrhea and hepatitis. Past studies indicate that most of the children (below the age of 5) in Pakistan suffer from four episodes of diarrhea and usage of safe drinking water has potential to significantly improve the situation. In the present study socio economic factors in determining the Pakistani household's decision for drinking water sources and adoption of water purifying methods at home have been analyzed. Study estimated the Multinomial logit (MNL) models on household data of Pakistan Demographic and Health Survey 2012-13. Study found that having small family, living in urban areas, being wealthy, being educated, having media exposure, less distance from water source, faced diarrhea by any family member in last four weeks and women empowerment are significant factors in utilization of safe or better quality drinking water in Pakistan.

Keywords: Safe Drinking water, Women Empowerment, Education, Awareness.

JEL Classification: D310, J160

Introduction

Inadequate and poor quality of drinking water is major health issue among developing countries. Because numerous deadly diseases particularly hepatitis and diarrhea are connected with drinking water's quality. According to WHO (2004) estimates approximately 1.8 million people dies every year due to diarrhea and majority of them (90%) are children. It was further concluded by the study that poor quality of water and sanitation is the major reason for 88 % of these fatal diarrhea illness. In view of that access to safe drinking water is acknowledged as basic human right (Jain, 2012).

¹ Assistant Chief, Economic Affairs Division, Islamabad, Pakistan. Email: naeem378@yahoo.com

² PhD Scholar, National University of Modern Languages, Islamabad, Pakistan. Email: akhaliq54@hotmail.com

Note: The views presented in the paper are author's personal views and do not represent views of their affiliated institutions in any respect.

Improving the quality of drinking water will result in curtailing the water borne diseases and diarrhea (Fewtrell et al., 2005; Esrey et al., 1991; Esrey & Habicht, 1986). It has been found that during 1870-1930, by providing piped water to the urban areas, mortality rates had declined rapidly in USA (Cutler & Miller, 2005). However, such benefits can only be achieved if good sanitation facilities and hygienic condition are available (Brick et al., 2004 & Checkley et al., 2004).

The situation of access to safe drinking water in developing countries is unsatisfactory. According to the estimates of UNICEF and WHO, almost 780 million people of the planet are lacking access to safe drinking water (WHO/UNICEF JMP 2012). In Pakistan, Nils (2005) estimated that approximately 2 lac children die annually due to the diarrhea. It has also been concluded that due to human waste and contamination of industrial and agricultural pollutants water's quality in Pakistan has significantly deteriorated over the years and polluted water is the main reason of 60% of infectious waterborne diseases (PCRWR, 2012). The study also concluded that in different urban areas of Pakistan, due to closeness with sewerage lines the piped water is also polluted.

In Pakistan, people drink water from various sources including, piped water, hand-pumps, wells, tube wells, bottled water, ponds, fountains and rivers etc. Past studies on the issue indicates that household's decision to choose the source of drinking water is significantly affected by wealth of household head, education and level of awareness about hazards of using unsafe water by the household head, household distance from water source, size of the family, quality of the water (taste, odour etc.) and locality of household living in urban or rural areas (Haq et al., 2007; Rauf et al., 2015; Abrahms et al., 2000; Zulifqar et al., 2016).

In order to purify water at home, people adopt different methodologies like filters, use of charcoal and boiling etc. Past studies on the subject found that cost of methods adopted to clean water, wealth of household head, education and level of knowledge about hazards of using unsafe water of household head plays significant role in selection of in-house water purifying methods (Bruce & Gnedenko 1998; Smith & Desvousges 1986; Jalan & Somanathan 2008; Quick et al., 1999; Mintz et al., 2001; Jalan et al., 2009). It was also concluded that wealthier and well educated household prefer to use comparatively expensive technologies (filters) for water purification (McConnell & Rosado 2000; Dasgupta, 2001)) However, it was argued that in comparison to education and awareness, wealth of household plays stronger role in decision making of adoption of water purification techniques (Jyotsna et al., 2003). It has also been concluded that households wherein female members are well educated tends to pay more for safe drinking water (Sattar & Ahmad, 2007).

In the present study drinking water sources and adoption of different water purifying techniques by Pakistani households will be analyzed. Study will also attempt to explore the role of different socio economic factors on the decision for using safe drinking water in Pakistan.

Methodology

Pakistan Demographic and Health Survey (PDHS) 2012-13 dataset have been used in the study. Over the years Demographic and Health surveys are conducted with the funding and assistance from USAID. A total of 12,943 households were interviewed in PDHS 2012-13.

As mentioned in introduction a household can get the safe drinking water by having access or using the treated water supplied by government/NGO/purchasing or household may treat the water at home. Checkley et al. (2004) and Brick et al. (2004) concluded there are likelihood that during storage and transportation of clean drinking water to the households' significant contamination can occur which deteriorates the water's quality. Therefore applying method to purify water at the time and point of its use is the more effective as compared to supplying/obtaining the treated water (Fewtrell et al., 2005). Colwell et al. (2003) found that in Bangladesh, very simple methods i.e. using old saris as water filter had successfully removed the harmful particulates (larger than 20 micron) from water, reducing the diarrhea by 45%, yet it failed to remove the bacteria. However if water is treated by boiling or using chemicals then bacteria can easily be eliminated (Mintz 1995; Quick et al., 1999).

The PDHS 2012-13 provide the data of household's drinking water sources and purifying methods adopted by them to make drinking water safe. In order to analyze the household's choice of the source of drinking water a Multinomial Logit (MNL) model has been estimated because dependent variables are multi-categories and they do not have any ranking or ordering. In the model base category is filtered/ bottled water.

Another multinomial logit model will be estimated to examine the household's preferences for water purifying methods and here no treatment will be used as base category. The independent variables of the analysis are household's income, education of household head, distance/time to reach water source, level of awareness of household head (proxied by Listening Radio, Watching TV, or Reading Newspaper), family size, household head's gender, family member facing diarrhea during last month, empowerment of women in the household and region (urban or rural).

Results and Analysis

In table 1, descriptive statistics of the explanatory variables have been presented. It suggests that approximately 46% of the households belong to urban areas, while majority are rural households i.e. 56%.

Table 1
Descriptive statistics of independent variables

Variable	Average	Standard Deviation	Minimum	Maximum
Region (Rural=0, Urban=1)	0.4653	0.4981	0	1
Household Head's Sex (Female =0, Male=1)	0.9142	0.2804	0	1
Household Head's age	46.6790	13.4142	14	95
Family Size	8.9082	5.1041	1	48
Education of Household Head	1.4290	1.1563	0	3 (High)
Wealth	3.0382	1.4234	1 (Top 20%)	5 (Bottom 20%)
Awareness (Listening Radio, Watching TV, or Reading Newspaper =1, 0 otherwise)	0.5063	0.4991	0	1
Distance to water source (Time to reach water source 15 minutes or more=1, 0 otherwise)	0.1744	0.3793	0	1
Women's Empowerment in purchasing Household items(Empowerment=1, 0 otherwise)	0.4031	0.4914	0	1
Incidence of Diarrhea (Diarrhea during last month=1, 0 otherwise)	0.1490	0.3561	0	1

Table also depicts that most of the households are headed by male (91%). Similarly, maximum age of the household head in the survey is 95 years while minimum age was 14 years, table also indicate that average age of the household head is 47 years. The maximum family size of the surveyed households is found to be 48 people. However, on average a family consists of 9 persons. It also suggests that approximately 50% of the households are either listening to radio or watching TV or they are reading newspapers, reflecting reasonable level of awareness. The table indicates that limited 17% of households are living in a place from where it took fifteen minutes or more to reach the water source. In 40% of the household's women enjoys autonomy in decision making for purchasing household items.

It is pertinent to mention here that in the survey seventeen different drinking water sources have been reported. Keeping in view the number of responses and nature of the sources they are clubbed into six water sources. Considering the bottled water and water obtained from filtration plant as the safe drinking water, in the first estimated model (Multinomial logit model) it is used as base category of water source.

Table 2
Estimation results (Drinking water source)

Variables	Water Sources				
	Piped Water	Protected well/ bore hole /Tube well	Springs/unprotected well	Streams/ River/ Cannels/ Lakes Dam/ Ponds	Carats/ Truck/Tanker
Region	0.3914*	-1.0391*	-1.3610*	-0.6483*	0.1692
Household Head's sex	0.1630	-0.1123	-0.8861*	-0.8162*	-0.7874
Household Head's age	-0.0011	-0.0060	-0.0012	-0.0114	-0.0113**
Family Size	0.0330*	0.0532*	0.6024*	-0.0713*	0.1021*
Education of the household head	-0.6481**	-0.0150	-0.0092**	-0.0914**	-0.1230**
Wealth of household	-0.7551*	-0.8910*	-1.4090*	-1.5513*	-1.1091*
Awareness (Media exposure)	-0.2623**	-0.3624*	-1.0664*	-0.6131*	-0.7983*
Distance to water source	3.2342*	2.3242*	-1.7273*	-0.6903*	-0.8161*
Women's Empowerment	-0.1143	-0.1311	-0.5304*	-0.8490*	-0.4272*
Constant	-2.2730*	4.3542*	4.7984*	4.0030*	2.0391*
LR Chi Square	5222.280*				

*p < 0.05; **p < 0.10

The results suggest that place of residence (living in urban or rural areas) have significant impact on the choice of drinking water source in four out of 5 alternative sources. It indicate that there are significantly more likelihood that households belonging to urban areas will use piped water in comparison to bottled or filtered water (cost seems to be major reason). However, there are significant less likelihood that urban households will use the water from rivers, streams, tube wells, and wells for drinking purposes.

It has also been found that in two alternatives the household head's sex had played significant role, suggesting that there is less likelihood of using drinking water form unprotected wells, springs, streams, rivers and dams by the households that are headed by male. However, the household head's age failed to exhibit any significant role in determining the drinking water source.

The family size emerged as strong determinant of household's decision of using drinking water source because of the significant results for all the alternatives. It has been found that in four alternatives households having large family size prefers these sources over bottled water or water from filtration plants. Due to the fact that with large family size the requirement of drinking water also increases so using bottled water or water from filtration plant become unaffordable. However, even the households having large family size do not like to use drinking water from dams, river and streams.

Similarly, the education and awareness (media exposure) have significant role in household's decision to choose from alternative water sources. It has been found that well educated and having media exposure households do not (significantly) prefer to use water from different sources over bottled water/water from filtration plants. It reflect that with education and media exposure household that are aware about the hazardous impacts of using unsafe water prefer safe drinking water sources.

Study also found that wealthier households significantly prefer to use bottled and filtered water over different other alternative sources. Because wealthier households had affordability of high cost of bottled water, furthermore they are also more health cognizant and are ready to make extra expenditure on safe drinking water sources.

Distance to water source also play significant role in household's choice of the drinking water source. It reveals that likelihood of using drinking water from protected wells, piped water and tankers significantly increases if it took fifteen minutes or more for the household to reach filtration plant. It is also pertinent to mention here that households do not prefer to use drinking water from dams, unprotected taps or rivers even if it took time to reach filtration plant. In line with our expectations study had found that household's wherein women are having autonomy in decision making for the household purchases are significantly more likely to use bottled water or from filtration plants for drinking purposes.

As mentioned in methodology section, in the next step, household behaviour of using different methods at home for water purification have been analyzed. Data of seven different in home water purification methods adopted by the households is available in the PDHS 2012-13. Due to very limited observations the use of have been clubbed with few other methods as others. Here the no treatment has been used as base category and Multinomial Logit (MNL) model is estimated. The results are present in table 3.

Table 3

Estimation results (use of water purification methods at home)

Variables	Water Purifying Methods			
	Boiling the water	Using cloth as filter	Electric Water Filters	Chlorine tablets and Others
Household head's sex	-0.1042	0.2984	0.4780	0.3223
Region	1.1593*	0.8890*	1.6001*	0.7723*
Household head's age	-0.0031	0.0020**	0.0092	-0.0143
Family Size	-0.0573*	-0.0034	-0.0293	-0.0550**
Education of the household head	0.1332*	0.8601**	0.5721*	0.1141**
Wealth of household	0.7390*	0.0342	1.2760*	0.5912*
Awareness (Media exposure)	0.0793*	0.2071**	0.2083**	0.5962**
Women's Empowerment	0.0113**	-0.1374	0.6182**	-0.0784
Diarrhea Incidence during past month	0.0741**	0.1220**	0.5672	0.1963
Constant	-7.0223*	-5.4562*	-15.1954*	-9.6250*
LR Chi Square	1513.590*			

*p < 0.05; **p < 0.10

These results suggest that household's place of residence is a significant factor in using the water purification methods. The urban households are more likely to adopt in house water purification methods in comparison to rural households. Study further reveals that urban households have a preference of using the electric water filters at home followed by boiling and using cloth as filters to purifying water. However, study unable to find any significant impact of sex of the household head on adoption of water purifying methods at home.

However, the age of the household head has significant impact on adoption of water purifying methods at home in one alternative (cloth filter). It suggests that household headed by more aged ones prefer to use the cloth as filters to purify water at home. Similarly size of the family is having significant and negative impact for the two alternatives (boiling water and use of chlorine tablets) out of four different alternatives. The possible reason is rather straight forward that with increase in family size, water requirements also increases and it may not be possible for these families to use filters. Therefore, they prefer not to use in home water purifying methods.

In line with the findings of first model it has been found that education and awareness (proxied by media exposure) have significant and positive impact on the adoption of in house water purifying methods (for all the alternative methods). Study also finds that households having awareness of hazards of using unsafe water have preference of using electric water filters at home followed by using cloth as filters and boiling water.

Similarly study also found that wealthier households significantly prefer to adopt electric water filters followed by boiling the water and using chlorine tablets to purify the water at home. However, there is no significant relationship of wealth on using cloth as filter for water purification. The empowerments of women also have significant and positive relationship with adoption of boiling and using electric filters to purify water at home. On the other hand, women empowerment failed to exhibit any significant impact on using cloth as filter and adoption of chlorine tablets to purify water at home.

The incidence of diarrhea by a family member of the household during last month have positive and significant relationship on adoption of boiling water and using cloth as filter to purify the water at home. However, it failed to portray any significant impact on use of electric filters and other alternative methods. It can be inferred that occurrence of diarrhea leads households to adopt only short term water purification methods at home.

Conclusion and Policy Implications

Unsafe drinking water is a critical health issue in developing countries because it results in different fatal diseases particularly hepatitis and diarrhea. According to the WHO (2004) estimates, diarrhea is main cause of the deaths of approximately 1.8 million people per annum, out of which 90% are children. Furthermore, unsatisfactory conditions of water and sanitation are the main reason of 88 % of these deaths. Significance of safe drinking water for wellbeing of the society is the basic motivation in conducting the present study.

Study reveals that size of the family, residence in in urban areas, education of the household head, awareness about hazards of unsafe water (proxied by media exposure) by the household head, empowerment of women in household and distance to water play significant role in household's

decision of choosing drinking water source. Similarly, wealth, residence in urban areas, size of the family, education of the household head, awareness about hazards of unsafe water (proxied by media exposure) by the household head, women empowerment in household and the incidence of diarrhea by family member during last month have significant impact on household's decision for adopting in house water purifying methods. However, study is unable to find significant impact of sex and age of the household head on adoption of in house water purifying method and choice of drinking water source.

Study provides insight to the policy makers in terms of household's socio economic characteristics that become an obstacle for them in getting safe drinking water or to purify it at home. By using this analysis policy makers can take initiatives to target these segment of the population to improve the situation of safe drinking water in Pakistan. It was found that level of awareness and education of the household head are highly significant determinants of decision of using safe drinking water source as well as adoption of water purifying methods at home, therefore it is strongly recommended that government should launch awareness campaigns on media on regular basis about hazards of using unsafe water for drinking purposes along with benefits of using simple purifying methods at home. Study also reveals significance of women empowerment in household matters and recommends that efforts through legislative process must be made to empower women it would not only be beneficial for economic development (Akram, 2018) but it would also help in increasing the usage of safe drinking water in Pakistan.

References

- Abrahams, N. A., Hubbell, B. J., & Jordan, J. L. (2000). Joint production and averting expenditure measures of willingness to pay: do water expenditures really measure avoidance costs?. *American Journal of Agricultural Economics*, 82(2), 427-437.
- Akram, N. (2018). Women's empowerment in Pakistan: its dimensions and determinants. *Social Indicators Research*, 140(2), 755-775.
- Brick, T., Primrose, B., Chandrasekhar, R., Roy, S., Muliylil, J., & Kang, G. (2004). Water contamination in urban south India: household storage practices and their implications for water safety and enteric infections. *International journal of hygiene and environmental health*, 207(5), 473-480.
- Checkley, W., Gilman, R. H., Black, R. E., Epstein, L. D., Cabrera, L., Sterling, C. R., & Moulton, L. H. (2004). Effect of water and sanitation on childhood health in a poor Peruvian peri-urban community. *The Lancet*, 363(9403), 112-118.
- Colwell, R. R., Huq, A., Islam, M. S., Aziz, K. M. A., Yunus, M., Khan, N. H., ... & Sack, D. A. (2003). Reduction of cholera in Bangladeshi villages by simple filtration. *Proceedings of the National Academy of Sciences*, 100(3), 1051-1055.

- Cutler, D., & Miller, G. (2005). The role of public health improvements in health advances: the twentieth-century United States. *Demography*, 42(1), 1-22.
- Dasgupta, P. (2004). Valuing health damages from water pollution in urban Delhi, India: a health production function approach. *Environment and development economics*, 9(1), 83-106.
- Esrey, S. A., & Habicht, J. P. (1986). Epidemiologic evidence for health benefits from improved water and sanitation in developing countries. *Epidemiologic reviews*, 8(1), 117-128.
- Esrey, S. A., Potash, J. B., Roberts, L., & Schiff, C. (1991). Effects of improved water supply and sanitation on ascariasis, diarrhoea, dracunculiasis, hookworm infection, schistosomiasis, and trachoma. *Bulletin of the World Health organization*, 69(5), 609.
- Fewtrell, L., Kaufmann, R. B., Kay, D., Enanoria, W., Haller, L., & Colford Jr, J. M. (2005). Water, sanitation, and hygiene interventions to reduce diarrhoea in less developed countries: a systematic review and meta-analysis. *The Lancet infectious diseases*, 5(1), 42-52.
- Haq, M., Mustafa, U., & Ahmad, I. (2007). Household's willingness to pay for safe drinking water: a case study of Abbottabad district. *The Pakistan Development Review*, 1137-1153.
- Jain, R. (2012). Providing safe drinking water: a challenge for humanity.
- Jalan, J., Somanathan, E., & Chaudhuri, S. (2009). Awareness and the demand for environmental quality: survey evidence on drinking water in urban India. *Environment and Development Economics*, 14(6), 665-692.
- Jalan, J., & Somanathan, E. (2008). The importance of being informed: experimental evidence on demand for environmental quality. *Journal of development Economics*, 87(1), 14-28.
- Jalan, J., Somanathan, E., & Choudhuri, S. (2003). *Awareness and the demand for environmental quality: drinking water in urban India*. SANDEE, Kathmandu, NP.
- McConnell, K. E., & Rosado, M. A. (2000). Valuing discrete improvements in drinking water quality through revealed preferences. *Water Resources Research*, 36(6), 1575-1582.
- Mintz, E. D., Reiff, F. M., & Tauxe, R. V. (1995). Safe water treatment and storage in the home: a practical new strategy to prevent waterborne disease. *Jama*, 273(12), 948-953.
- Rosemann, N. (2005). Drinking Water Crisis in Pakistan and the Issue of Bottled Water: The Case of Nestlé's 'Pure Life.'. *Actionaid Pakistan*, 4, 37.
- Pakistan Council of Research in Water Resources (PCRWR) (2012). PCRWR Bi-ennial Report 2009-10. Islamabad.
- Quick, R. E., Venczel, L. V., Mintz, E. D., Soletto, L., Aparicio, J., Gironaz, M., & Chavez, D. (1999). Diarrhoea prevention in Bolivia through point-of-use water treatment and safe storage: a promising new strategy. *Epidemiology & Infection*, 122(1), 83-90.
- Rauf, S., Bakhsh, K., Hassan, S., Nadeem, A. M., & Kamran, M. A. (2015). Determinants of a household's choice of drinking water source in Punjab, Pakistan. *Polish Journal of Environmental Studies*, 24(6), 2751-2754.
- Sattar, A., & Ahmad, E. (2007). HHs preferences for safe drinking water. *International Journal of Human Development*, 3(1), 23-36.
- Smith, V. K. and Desvougues W. H. (1986). Averting Behaviour: Does it Exits? *Economics Letters*, 20(3),291-296.

-
- Water, S., & World Health Organization. (2004). Water, sanitation and hygiene links to health: facts and figures.
- World Health Organization, & Research for International Tobacco Control. (2008). *WHO report on the global tobacco epidemic, 2008: the MPOWER package*. World Health Organization.
- WHO, U. (2012). UNFPA, The World Bank. Trends in maternal mortality: 1990 to 2010. *World Health Organization, UNICEF, UNFPA, and The World Bank*.
- Zulfiqar, H., Abbas, Q., Raza, A., & Ali, A. (2016). Determinants of safe drinking water in Pakistan: a case study of Faisalabad. *Journal of Global Innovations in Agricultural and Social Sciences*, 4(1), 40-45.

RELATIONSHIP OF WORKING ENVIRONMENT, EMPLOYEE EMPOWERMENT, TRAINING & DEVELOPMENT AND ORGANIZATIONAL COMMITMENT

Nawaz Ahmed¹, Muhammad Ashraf² and Riaz Ahmed Mangi³

Abstract

Developing an environment which promotes the organizational commitment among employees is one of the most essential factors for sustainable organizational development. This may be argued, based on the literary evidences that committed employees can lead to higher organizational productivity. Organizational commitment has received impressive attention of researchers, however the studies on commitment among people in education sector in Pakistan yet to receive its due attention. The objective of this study is therefore, to explore the influences of working environment, employee empowerment, training & development on organizational commitment among employees working in business schools in Karachi, Pakistan. The data were collected using close ended questionnaire from 346 employees both faculty and administrative staff. Convenient sampling technique is used to gather the data. The collected data were analyzed using Structural Equation Modeling (SEM). The results of the study indicate that all the factors significantly influence the organizational commitment. The results of this study are anticipated to be value addition in higher education policies.

Keywords: Business Schools, Employee Empowerment, Training & Development, Organizational Commitment, Working Environment.

JEL Classification: M540

Introduction

Human resource has been witnessed as the most significant and important resource for attaining competitive edge over contemporary organizations. It is considered as driving factor for all the other important resources such as capital, equipment, information and monetary resources.

¹ Assistant Professor, Department of Marketing, Institute of Business Management (IoBM), Karachi, Pakistan. Email: nawaz.ahmad@iobm.edu.pk

² PhD scholar, Department of Commerce, SALU, Khairpur, Pakistan. Email: professycom@yahoo.com

³ Professor, Institute of Business Management (IoBM), Karachi, Pakistan. Email: drriaz@iobm.edu.pk

Human resource of an organization is not only headcounts, but the versatility of culture, skill, ability, and societal interaction among business units. If this resource is well managed, can lead the firm towards the accomplishment of excellence, contrary beget the corporate stress (Armstrong, 2005). People in an organizational are required to be treated with greater care, as the quality treatment with employees while performing their related duties determines the organizational intentions to the growth of both employees and organizations. The age of cut throat competition and increasing pace of organizational excellence have necessitated the modern organizations to honor the commitment, they have had with their employees; devaluing or negating such words of commitment again begets the brain drain. Organizational commitment and employee behavior are directly proportional to each other. The positive attitude among employees while performing their assigned duties is subject to the amount commitment from management. A discontent worker is a negative ambassador to organization in talent market. Commitment is thus the greater source, which bonds both organization and employee (Buchanan, 1974).

The persistent positive attitude of an employee shows his/her degree of commitment towards organizational promotion. In a race of managing organizational resources, particularly skilled human capital, the role of organizational commitment has been studied as of pivotal significance. This may be because of its direct relationship with job satisfaction, organizational ability to earn profit, and effective survival in superior quality competition (Abdul & Ramay, 2012). Some researchers also endorsed the direct impact of organizational commitment on employee performance; hence it has won the confidence of researchers (Siders, George & Dharwadkar, 2001; Meyer, Stanley, Herscovitch & Topolnytsky, 2002; Jaramillo, Mulki & Marshall, 2005). The strength of such bond is a byproduct of several interrelated factors, such as fair perception of employees about internal and external equity, dignified treatment while rewarding and punishing etc. A dedicated employee is an indication of positive working environment in the organization. The congenial working conditions, ear to employee voice, vigilance to employee sufferings constitute the ideal working environment which promotes the sense of higher order commitment among employees. The role of commitment in promoting positive attitude among knowledge workers is of high significance. Particularly people engaged directly or indirectly in imparting education or to develop human capital.

The earlier studies on commitment have established the relationship with numerous factors. However, this research is bit unique in the sense it investigates the relationship between identified factors rarely studied in Pakistani context. More specifically in private owned Higher Education Institutions in Karachi.

Purpose of Research

The purpose of this research is to evaluate the factors including working environment, employee empowerment, training and development and their influence on organizational commitment.

Significance of the study

As the purpose of this study is to find out the factors promotes and demotes the amount of commitment among employees, therefore findings of this study can be value able policy input for HR policies, particularly for education sector.

Literature Review

Working environment

To evaluate the nature of relationship between working environment and organizational commitment, several studies have been conducted and documented several distinct findings. Employee involvement, peer relation, manager support, authority to carryout tasks independently, handling work pressure, creativity and corporeal contentment have been studied as significant predictors of affective commitment (Moos, 1994). Both Continuance and normative commitment being indicators of organizational commitment stand aloof toward above said working environment factors. Chughtai and Zafar (2006) reported the positive significant relationship between work environment and organizational commitment among teachers in university of Lahore. The study further concluded that supervisors' role had a significant influence on organizational commitment. The behaviors, norms and practices of both organizational procedural execution and employees' practices constitute the working environment in an organization. Thus retaliating behaviors, deviating practices, unfair procedures signify the existence of discouraging working environment.

The study regarding the relationship of work environment, burnout, managerial and individualistic variables with organizational commitment, concluded negative association with continuous commitment (Maqsood, 2011). Baher and Ziabari (2014) reported that congenial working environment begets the sense of commitment among employees. Even the suitable room temperature while working can cause improved commitment among employees (Parveen, Sohail, Naeem, Azhar & Khan, 2014). Bhatti, Bhatti, and Akram (2016) found the negative association between working environment stressors and organizational commitment among bankers. The significant influence of working environment on organizational commitment among librarians has been studied in Nigerian context (Mayowa-Adebara, Okeoghene & Aina, Folashade, 2016). Hanaysha (2016) found significant influence of working environment on organizational commitment. The researchers like Hanaysha (2016), is of this opinion that the working environment suited to the employees shows the extent of commitment from the part of organization. The knowledge workers particularly in education sector needs more positive and encouraging working environment to discharge their duties. The educators are the developers of leaders (Lieberman, 2011). Despite of all these literary evidences, there is still dearth of studies focusing the state of commitment and working environment among employees of business schools in Karachi. We have therefore formulated following hypothesis for the study
H1: There is no relationship between working environment and organizational commitment.

Employee Empowerment

The authority to execute the powers conferred to an individual refers to empowerment. More simply it refers to an individual's freedom to do and to achieve the desired objective (Sen, 1985). The history of having freedom and empowerment is deeply rooted into human experience. Thus it has been extensively studied since long. In a work setting it is referred as employee empowerment. Hunjra, Haq, Akbar and Yousif (2011) reported that empowerment is fundamental ingredient to achieve organizational milestone. Employee empowerment is considered as motivational and managerial tool, which is intended to increase the opportunities of participation in organizational decision making, which in turn overcome the barriers between management and employees (Meyerson & Dewettinck, 2012).

The merits of employee empowerment in an organizational setting have significant value. For instances, it can increase the sense of ownership among employees, when they perceive that they have their input in important decisions (Jacquiline, 2014) and becomes the ambassadors to the managerial decision (Roberts, 2014). Any favorable policy about employee empowerment is targeted to share the managerial responsibility and authority of decision making, the commitment among employees and motivation to work is improved (Biore, 2015; Fernandez & Moldogaziev, 2015). Several past studies have endorsed the significance employee empowerment in predicting organizational commitment (Kun, Hai-yan, & Lin-li, 2007; Insan, A. N., Astuti., Raharjo, & Hamid 2013; Gholami, Soltanahmadi, Pashavi, & Nekouei, 2013). This study has therefore formulated following hypothesis to be tested in the context of privately owned business schools in Karachi.

H2: There is no relationship between Employee Empowerment and Organizational Commitment.

Training and Development

The modern business practice seems to be characterized by the quality of competitiveness among rival businesses. The changing and diversified working environment has made the situation challenging for entrepreneurial practices. In this regard the knowledge and skill of the people working with organization is of single most important factor, for its persistent development and progress. The knowledgeable and skilled workers proved to be significant determinant to gain competitive edge in market place (Becker, Bose, & Freeman, 2006). To become effective and efficient to response the challenges the ongoing training programs are essential to be developed from time to time (Barlett, 2001; Meyer, Stanley, Herscovitch, & Topolnytsky, 2002). The continuous and effective training increases the performance of employees on job (Hafeez & Akbar, 2015; Hanaysha, 2016). The organizations are required to remain vigilant to assess the need of training among employees, so that skill gap may be bridged and also to motivate to provide them reason to work (Edid, 2007). This eventually promotes the loyalty and amount of commitment for the organization (Owoyemi, Oyelere, Elegbede, & Gbajumo-Sheriff, 2011).

For the persistent organizational growth and future challenges the employee development programs are required to be formulated. Employee development program assist the employees to become continuous learner, regardless of organizational need (Jacobs & Washington, 2003). Previous surging studies on training and development have confirmed that it has positive influence on job satisfaction (Leppel, Brucker, & Cochran, 2012; Sabir, R. I., Akhtar, Bukhari, Nasir, & Ahmed, 2014; Tahir, Yousafzai, Yousafzai, Jan, & Hashim 2014) and the amount of commitment among employees (Bulut & Culha., 2010; Hassan & Mahmood, 2016). Training and continuous proficient development can usher the amount of commitment among employees (Tarasco & Damato, 2006). Nksoi (2015) and Qiao, Luan and Wang (2008) also reported that training and development can enhance the organizational commitment. On the basis above discussion following hypothesis is formulated to be tested *H3*: There is no relationship between Employee training & Development and organizational commitment

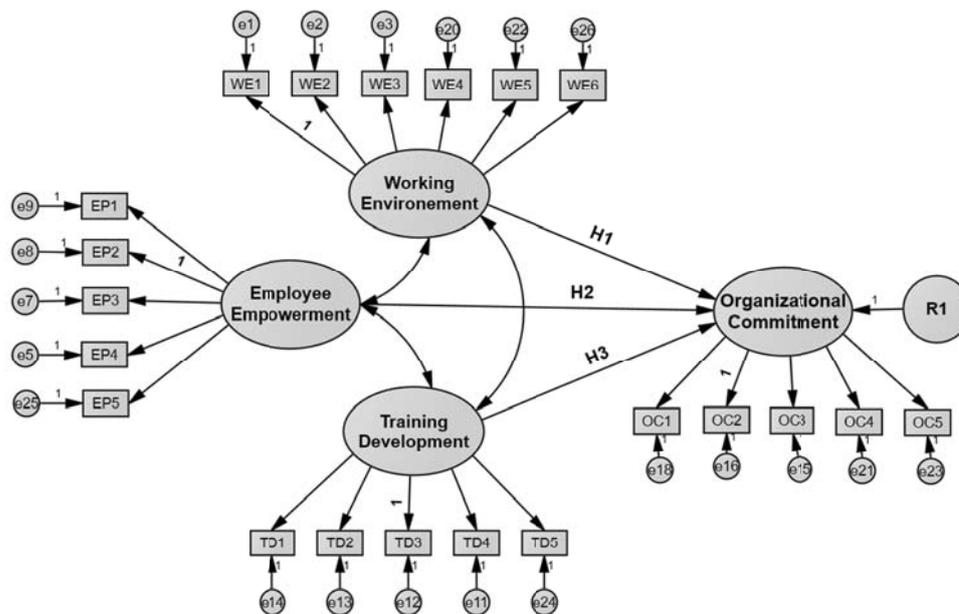


Figure 1: Conceptual Frame Work

Methodology

For achieving aforementioned objective of the study, we have made population, the people working in business schools of various private owned universities in Karachi, Sindh, Pakistan. The target population for the study is both administrative and academic staff. Quantitative research

approach is most frequently used technique to assess the causal effect among the variable of interest. In order achieve the set objective of the study we have collected the data from 346 employees, by using convenient sampling technique as the population frame was not made available. The sample size was determined through the online calculator (Christensen, Johnson, & Turner, 2014). The data collection instrument for this study has been borrowed from several previous studies. For organizational commitment we have taken into account the scale of Mowday, Steers and Porter (1979). The employee empowerment was measured through the scale developed Men (2010). For measuring working environment, we have used Working Environment Questionnaire (WEQ) with changes to suit the condition and the context. An adapted scale for measuring training and development, a six item based questionnaire of Schmidt (2004) has been used for this study. For the seeking the face validity the questionnaire prior to collecting data it was presented before experts.

Analysis of the Results

The selected respondents were requested personally to fill the questionnaire, however out of 500 questionnaires, only 434 were returned, of which 346 were useable constituting the response rate 69.2% (30.5%) were female respondents, whereas rest of them were male respondents. The mean age group of female respondents was 35 years, whereas it was 45 years of male respondents. The majority of the respondents were having more than 2 years of work experience with the business schools. The data about academic qualifications showed that majority of them had Masters Degrees (79%); however, the greater chunk in this regard were among female respondents constituted (66%). In order the test the reliability of the data collection instruments used in this study, we have conducted Cronbach’s alpha reliability test using SPSS 20 software (IBM, 2011). The results showed the all the value of the selected research constructs namely organizational commitment (0.70) Employee empowerment (0.78), working environment (0.88) and employee training & development were (0.92), thus fairly acceptable. Making test robust we have calculated composite reliability (CR) test for all constructs of the study using Microsoft Excel. The result of the CR was 0.876 for working environment, 0.870 for employee empowerment, 0.894 for training & development and for organizational commitment the CR was 0.892, fairly acceptable (Pallant, 2010). Confirmatory Factor Analysis (CFA) was conducted to check the construct validity. The construct validity is computed by Average Variance Extracted; the AVE is determined through the formula No. 1. The related AVEs are given in table 2. In this regard the Structural Equation Modeling (SEM) was executed using AMOS 20 (Arbuckle, 2011) through measurement model carrying all items. In CFA results it was confirmed that the factors showed loadings ranges from 0.40 to 0.94 were retained and rest eliminated systematically, thus the items were in aligned with suggested cut-off (Hair, Black, Babin, & Anderson, 2010; IRMA, 2015).

$$AVE = \frac{\text{Sum of Standardized Loading Square}}{\text{Sum of Standardized Loading Square + measurement error}} \dots\dots\dots(1)$$

$$\text{Measurement Error} = 1 - (\text{Standardized loading})^2 \dots\dots\dots(2)$$

Table 1
CFA, Reliability and Validity Analysis

Variables	Constructs	Factor Loading	Cronbach's Alpha	Composite Reliability	AVE
Working Environment	EP1	.82	.88	.876	.795
	EP2	.83			
	EP3	.75			
	EP4	.78			
Employee Empowerment	EMP1	.87	.78	.870	.770
	EMP2	.94			
	EMP3	.68			
	EMP4	.59			
Training & Development	TD1	.77	.92	.894	.870
	TD2	.93			
	TD3	.91			
	TD4	.87			
Organizational Commitment	OC1	.91	.70	.829	.780
	OC2	.95			
	OC5	.50			

After conducting CFA, the structural model was drawn and the goodness of fit for the data was ensured. The model is shown in figure 2:

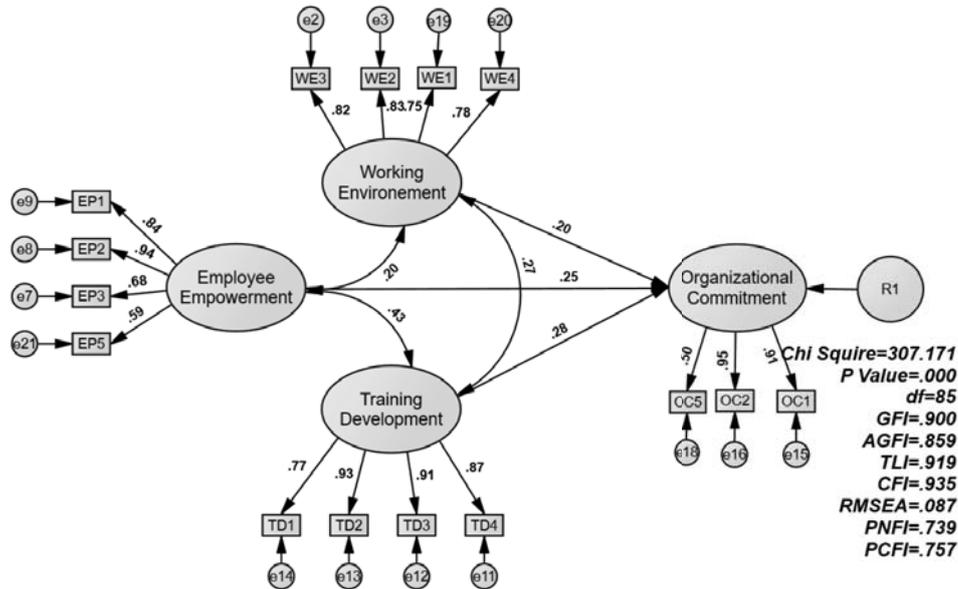


Figure 2 : Presented above is the structural model along with fit indices i.e. parsimonious, incremental and absolute, which are further presented in table 3.

Table 2
Fit Indices

Model	Absolute Fit Indices			Incremental Fit		Parsimonious Fit		
	Df	χ^2	GFI	AGFI	RMSEA	TLI	PNFI	PCFI
1	84	307.171	.916	.881	.072	.927	.739	.757

The chi square value for data was significant, which were required to be insignificant, however the test is sample sensitive. Which always returns with p-value 0.000, as in our case means more the sample size more the significance of chi-square will be. Therefore, we have also taken into account other indices as well. In supporting the chi-square we have (df=85, GFI = 0.916, AGFI = 0.881, TLI = 0.927, CFI, 0.924 and RMSEA 0.072, PNFI=.739, PCFI=.757). On the basis of the given fit indices the model was fit enough, however to test if the formulated hypotheses for the study either retained or rejected. For this purpose, we have presented the regression results generated from the output of the structural model. Thus the results for the hypotheses are presented into table 4.

Table 3
Hypotheses Assessment Summary

	Hypotheses Statements	Estimate	S.E	C.R	P	Results
H₁	There is no relationship between working environment and organizational commitment	.209	.057	3.65	.000	Significant
H₂	There is no relationship between Employee empowerment organizational commitment	.244	.055	4.43	.000	Significant
H₃	There is no relationship between Employee training & Development and organizational commitment	.261	.054	4.83	.000	Significant

The findings of the analysis given in the table 4 shows that working environment has no effect on organizational commitment ($\beta = .209$, t -value = 3.65, $p > 0.01$), thus H₁ is rejected. The results further revealed that employee empowerment is significantly associated with organizational commitment ($\beta = 0.245$, t -value = 4.43, $p < 0.01$), therefore H₂ is rejected. The findings also indicated that employee training and development is positively related with organizational commitment ($\beta = 0.261$, t -value = 4.83, $p < 0.01$), hence the H₃ is also rejected. The investigated factors namely working environment, employee empowerment and training & development collectively explain 60 percent variance in organizational commitment.

Discussion and Conclusion

To examine the influence of working environment, employee empowerment, and training development on organizational commitment was the objective of this study. The data was collected from the employees working in different business schools in privately owned universities, Higher Education Institutions (HEIs) in Karachi Pakistan. The results of this study showed that working environment do not predict organizational commitment. The findings of this study revealed that employee empowerment significantly predicts the organizational commitment, thus the findings are in alignment of the results documented by (Hanayasha, 2016; Gholami, Soltanahmadi, Pashavi, & Nekouei, 2013). Employee empowerment promotes the sense of belongingness and feelings of ownership among employees, which can eventually ameliorate the commitment and performance on job (Ahmad & Onanye, 2010). The studies have confirmed that an authorized employee will highly motivate towards the achievement of organizational objectives. Thus it is authenticated that employees in business schools of Karachi should be equipped with sufficient empowerment, so that sense of commitment may be created among them.

The results of the study also confirm that training and development significantly influence the organizational commitment. The similar findings have been documented by several scholars (Han-

ayasha, 2016; Karimi, 2016; Dias & Silva, 2016). The results of the study confirm that training is very useful managerial tool to fill the skill gap and making the employees ready to meet the future challenges. Thus the training and development is very helpful for gaining competitive advantage. Like most of the researches this study have also some limitations, the focus of this study was only people working in business schools in private owned universities and HEIs, and they got a different culture than that of public sector universities and HEIs, therefore the findings of this study may not be generalizable to public sector universities. This investigation was conducted quantitatively; therefore, further studies can be conducted qualitatively. The number of variable were obviously limited in this study other variables, mediation, moderation analysis is suggested.

References

- Abdullah., & Ramay, I. M. (2012). Antecedents of organizational commitment of banking sector employees in Pakistan. *Serbian Journal of Management*, 7(1), 89-102
- Ahmad, N., & Oranye, N. O. (2010). Empowerment, job satisfaction and organizational commitment: a comparative analysis of nurses working in Malaysia and England. *Journal of nursing management*, 18(5), 582-591.
- Armstrong, M., & Baron, A. (2005). *Managing performance: performance management in action*. CIPD publishing.
- Arbuckle, J. L. (2014). Amos (version 23.0)[computer program]. *Chicago: IBM SpSS*.
- Baher, R. K., & Ziabari, S. Z. M. (2014). The Survey of organizational commitment and its relation to individual factors in staff of university libraries in Guilan province. *Academic Journal of Research in Economics and Management*, 241(1430), 1-9.
- Bartlett, K. R. (2001). The relationship between training and organizational commitment: A study in the health care field. *Human resource development quarterly*, 12(4), 335-352.
- Becker, W., Bose, A., & Freeman, V. (2006). An executive take on the top business trends: A McKinsey Global Survey. Retrieved on 9 October, 2015 from: <http://www.nxtbook.com/nxtbooks/bemagazine/vol3issue2/index.php?startid=60>
- Bhatti, M. H., Bhatti, M. H., Akram, M. U., Hashim, M., & Akram, Z. (2016). Relationship between job stress and organizational commitment: An empirical study of banking sector. *E3 Journal of Business Management and Economics*, 7(1), 29-037.
- Biore, C. (2015). Career Management, Employee Empowerment and Motivation in an Academic Institution: Fostering Job Satisfaction. *JPAIR Multidisciplinary Research*, 22(1), 10-22. doi:10.7719/jpair.v22i1.338
- Buchanan, B. (1974). Building organizational commitment: The socialization of managers in work organizations. *Administrative Science Quarterly*, 19, 533-546. doi:10.2307/2391809
- Bulut, C., & Culha, O. (2010). The effects of organizational training on organizational commitment. *International Journal of Training and Development*, 14(4), 309-322.
- Christensen, L. B., Johnson, R. B., & Turner, L. A. (2014). *Research Method Design, and Analysis*. New Delhi: Dorling Kindersley Pvt Ltd.

- Chughtai , A. A & Zafar , S. (2006). Antecedents and consequences of organizational commitment among Pakistani University teachers. *Applied H.R.M. Research*, 11(1), 39-64.
- Dias, Á.& Silva, R. (2016). Organizational Training and Organizational Commitment: A Literature Review and Conceptual Development. *International Journal of Innovative Science, Engineering & Technology*, 3(1), 387-399.
- Edid, M. (2007). Bridging the Gap: Training Needs Assessment of the Immigrant Workforce in Onondaga County, NY.
- Fernandez, S., & Moldogaziev, T. (2015). Employee empowerment and job satisfaction in the US Federal Bureaucracy: A self-determination theory perspective. *The American review of public administration*, 45(4), 375-401.
- Gholami, Z., Soltanahmadi, J. A., Pashavi, G., & Nekouei, S. (2013). Empowerment as a basic step in upgrading organizational commitment and organizational citizenship behaviors: A Case study on public sector in Iran. *World Applied Sciences Journal*, 21(11), 1693-1698.
- Hafeez, U., & Akbar, W. (2015). Impact of training on employees performance (Evidence from pharmaceutical companies in Karachi, Pakistan). *Business Management and Strategy*, 6(1), 49-64.
- Hanaysha, J. (2016). Examining the effects of employee empowerment, teamwork, and employee training on organizational commitment. *Procedia-Social and Behavioral Sciences*, 229, 298-306.
- Hassan, S., & Mahmood, B. (2016). Relationship between HRM practices and organizational commitment of employees: An empirical study of textile sector in Pakistan. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 6(1), 23-28.
- Hair, J. F. (2010). Black, Wc, Babin, Bj, & Anderson, Re (2010). *Multivariate data analysis*, 7.
- Hunjra, A. I., UlHaq, N., Akbar, S. W., & Yousaf, M. (2011). Impact of employee empowerment on job satisfaction: An empirical analysis of Pakistani service industry. *Interdisciplinary Journal of Contemporary Research in Business*, 2(11), 680-685.
- Spss, I. I. B. M. (2011). IBM SPSS statistics for Windows, version 20.0. *New York: IBM Corp*, 440.
- Insan, A., Astuti, E. S., Raharjo, K. U. S. D. I., & Hamid, D. J. A. M. H. U. R. (2013). The effect of empowerment of the organizational commitment and the job satisfaction of the employees of the National Electricity Company (Ltd.) in South Sulawesi Province Indonesia. *Asian transactions on basic & applied sciences*, 3(4), 13-23.
- IRMA. (2015). *WebBased Services: Concepts, Methodologies, and Applications*. NY: IGI Global.
- Kayagaki, N., Stowe, I. B., Lee, B. L., O'Rourke, K., Anderson, K., Warming, S., ... & Liu, P. S. (2015). Caspase-11 cleaves gasdermin D for non-canonical inflammasome signalling. *Nature*, 526(7575), 666.
- Jacobs, R., & Washington, C. (2003). Employee development and organizational performance: a review of literature and directions for future research. *Human Resource Development International*, 6(3), 343-354.
- Jacquiline, F. N. (2014). Employee empowerment and job satisfaction. *Researchjournali's journal of*

- human resource*, 2(2), 1-12.
- Jaramillo, F., Mulki, J. P., & Marshall, G. W. (2005). A meta-analysis of the relationship between organizational commitment and salesperson job performance: 25 years of research. *Journal of Business Research*, 58(6), 705-714.
- Karimi, N. B. (2016). The relationship between employee training and organizational commitment in the ministry of energy and petroleum, Kenya. *Published Masters Degree Dissertation. [Google Scholar]*.
- Kun, Q., Hai-yan, S., & Lin-li, L. (2007, August). the effect of empowerment on employees' organizational commitment: Psychological contract as mediator. In *2007 International Conference on Management Science and Engineering* (pp. 1493-1498). IEEE.
- Lieberman, A. (2011). Laureates Speak Can Teachers Really Be Leaders?. *Kappa Delta Pi Record*, 47(sup1), 16-18.
- Leppel, K., Brucker, E., & Cochran, J. (2012). The importance of job training to job satisfaction of older workers. *Journal of aging & social policy*, 24(1), 62-76.
- Maqsood, A. (2011). *Work environment, burnout, organizational commitment, and role of personal variables as moderators* (Doctoral dissertation, Quaid-i-Azam University, Islamabad).
- Mayowa-Adebara, Okeoghene & Aina, Folashade (2016) Work Environment and Organizational Commitment of Staff in Academic Libraries in Lagos State, Nigeria. *Journal of Applied Information Science and Technology*, 9(1), 39-48.
- Men, L. (2010). Measuring the impact of leadership style and employee empowerment on perceived organization reputation. *University of Miami, Submitted to the Institute of Public Relations*.
- Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of vocational behavior*, 61(1), 20-52.
- Meyerson, G., & Dewettinck, B. (2012). Effect of empowerment on employees performance. *Advanced Research in Economic and Management Sciences*, 2(1), 40-46.
- Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of vocational behavior*, 14(2), 224-247.
- Moos, R. H. (1994). *Work Environment Scale Manual*. Palo Alto, CA: Consulting Psychologists Press.
- Nkosi, S. M. (2015). Effects of training on employee commitment, retention and performance: A case study of a Local Municipality in South Africa. *European Journal of Business and Management*, 7(15), 104-108.
- Owoyemi, O. A., Oyelere, M., Elegbede, T., & Gbajumo-Sheriff, M. (2011). Enhancing employees' commitment to organisation through training. *International Journal of Business and Management*, 6(7), 280-286.
- Pallant, J. (2010). *SPSS survival manual: a step by step guide to data analysis using the SPSS program*, Maidenhead.
- Parveen, S., Sohail, M. M., Naeem, F, Azhar, Z., and Khan, S. H. (2014). Impact of office facilities and workplace milieu on employees performance: a case study of Sargodha university. *Asian Journal of Empirical Research*, 2(4), 96-117.

- Qiao, K., Luan, X., & Wang, X. (2008, October). HRM practices and organizational commitment: A study about IT employees from Chinese private-owned enterprises. In *2008 4th International Conference on Wireless Communications, Networking and Mobile Computing* (pp. 1-6). IEEE.
- Roberts, G. E. (2014). Principles of Servant Leader Human Resource Management (SLHRM). In *Servant Leader Human Resource Management* (pp. 1-38). Palgrave Macmillan, New York.
- Sabir, R. I., Akhtar, N., Bukhari, F. A. S., Nasir, J., & Ahmed, W. (2014). Impact of training on productivity of employees: A Case study of electricity supply company in Pakistan. *International Review of Management and Business Research*, 3(2), 595-606.
- Sen, A. (1985). Well-being, agency and freedom: The Dewey lectures 1984. *The journal of philosophy*, 82(4), 169-221.
- Schmidt, S. W. (2004). The Job Training and Job Satisfaction Survey Technical Manual. *Online Submission*.
- Siders, M. A., George, G., & Dharwadkar, R. (2001). The relationship of internal and external commitment foci to objective job performance measures. *Academy of Management Journal*, 44(3), 570-579.
- Tahir, N., Yousafzai, I. K., Yousafzai, I. K., Jan, D. S., & Hashim, M. (2014). The Impact of Training and Development on Employees Performance and Productivity A case study of United Bank Limited Peshawar City, KPK, Pakistan. *International Journal of Academic Research in Business and Social Sciences*, 4(4), 86-98. doi:10.6007/ijarbss/v4-i4/756.
- Tarasco, J. A., & Damato, N. A. (2006). Build a better career path: Your future depends on how well you cultivate your staff. *Journal of Accountancy*, 201(5), 37-41.

RELATIONSHIP BETWEEN CURRENT ASSETS MANAGEMENT AND FIRM'S MARKET VALUE: EVIDENCE FROM PAKISTAN

Mehwish Riaz¹, Saba Haider² and Mohsen Shafiq³

Abstract

Business concerns must pay close attention to the management of current assets. This ensures a sufficient level of cash balances as well as other current assets, including stock (trade stock), and receivables. However, limited and/or overindulgence of current assets can cause serious threats to firms. Therefore, this study attempts to empirically test whether or not managing current assets influences the market value of firms with a sample of 59 firms from different industries listed at Karachi Stock exchange including textile, cement, chemical, sugar, fuel & energy and engineering industry. Data is gathered on quarterly basis from firms' financial reports for the period of 8 years (2008-2015). The GMM estimation technique is used to analyze the data. The analysis is conducted in 2 stages: firstly, separate industry to industry analysis is performed analyzing whether or not the association among the variables varies from industry to industry. Secondly a general estimation is performed to determine a general connection among the variables. The results indicate statistically significant connection of current asset management and firm's market value; however, in some industries this relation is negative while in others it is positive. This leads to the conclusion that association between firm's current assets management and market value depends on industry at which firm exists. Therefore, to augment the shareholder's wealth, authorities and decision makers are needed to consider that how the management of current assets affects its market value.

Keywords : Current Asset Management, Market Value of the Firm, Wealth Maximization, Karachi Stock Exchange.

JEL Classification: G100

¹ Lecturer, University of Gujrat, Pakistan (PhD Scholar, Universiti Sultan Zainal Abidin, Malaysia).
Email: mehwish.riaz@uog.edu.pk

² Lecturer, University of Gujrat, Pakistan (PhD Scholar, Comsats University Islamabad, Lahore Campus).
Email: saba.haider@uog.edu.pk

³ PhD Scholar, University Sultan Zainul Abadin, Malaysia. Email: mohsenshafiq14@gmail.com

Introduction

Managing current asset is considered very vital for business concerns as, the largest part of their investment lies in their current assets. Management of current assets requires maintaining an adequate amount of current assets including liquid money, trade debts, stock and marketable securities (Graham, 2001). This is because that the inadequate levels of current assets (excess as well as limited level of current assets) can cause serious threats to the company. The limited levels of current assets not only create the liquidity problems for the business but also increase the operating risk of the firm. Alternatively, the excess of current asset adds on to the cost of company eventually affecting the firm value. Mahmoudzadeh et al. (2017) argued that assessment of working capital is essential for business operations as having uncertain working capital usually keep the production low because of risks in operations and results in liquidity problems.

Management of current assets is considered as of crucial importance to develop the business level strategies that aim at enhancing the shareholder's wealth (Afza & Nazir, 2007). Afza and Nazir (2007) also claimed that sustaining a minimum optimal level of current assets not only help the firms to generate the maximum possible revenues but also makes the firm able to generate free cash flows. These free cash flows increase the growth opportunities for the business and ultimately the shareholder's return. Conversely, the unnecessary levels of current assets result in piling up more inventories, higher amount to money tied in receivables and keeping excess cash leads to the inefficient deployment of available resources therefore, value of firm will be negatively influenced by keeping redundant levels of these current assets. Therefore, conclusion can be drawn that decisions regarding current assets management ultimately influence the value of firm. Lewellen and Lewellen (2016) also found that lack of investment opportunities, financing frictions and free-cash flow problems bound firms to have a less amount of investment and cash flow that can eventually influence the value of firm. Hence, one of the main financial decisions of a firm is to ensure a suitable level of current assets that maximize its value.

Furthermore, Afza and Nazir (2007) exerted that effective management of current assets can increase company's rate of return as it has ability to positively influence the free cash flows of company. Moreover, Makelainen (1998) argued that a company having higher returns than its cost of capital is able to successfully enhance the value of its share in the market thereby increasing the shareholder's wealth. Thus, better management of current asset can help increasing the rate of return of firm that may influence the value of firm in a positive way.

Therefore, the study aims at examining the connection of current asset's management & firm value. Since, management of current assets can be measured through cash conversion cycle that's why the researcher has used this measure is used as proxy of management of current assets & to analyze its impact on value of firm.

Study Objectives

The objectives of this empirical study are to:

1. Examine the impact of current assets management on the market value of firm in general (collectively) & industry-wise separately.
2. Analyze the influence of individual components of assets management on the market value of firm in general (collectively) and industry-wise separately.

Literature Review

Current asset management has remained the center of interest for many researchers' academicians and businesses in the past. Ogundipe et al. (2012) argued that WCM (working capital management) that reveals the management of current asset and liabilities have power to influence profitability and firms' value of the business concerns. This is the reason that many researchers have put forth their efforts to study the relationship between the working capital and profitability of the firm. However, relationship between the current asset management and firm's market value is not much explored area rather has been neglected. Therefore, in the present study, researchers tried to find the link between these two.

Sudiyatno et al. (2017) examined the linkage of working capital, firm value and performance taking the statistics of companies listed at Indonesian Stock Exchange. Results signify that working capital has significant positive influence on the firm performance however, this firm performance negatively influence the firms' value. Researchers further suggested that the corporate performance is not considered as a positive signal for the future investor.

Kasiran et al. (2016) proposed that an effective management of working capital results in sustainability and growth of the firm. However, improper utilization of working capital will restrict the firm to avail short term investment opportunities as a result of liquidity crisis. In other times, Jędrzejczak-Gas (2017) claimed that during economic crisis firms should have more current liabilities than current assets to ensure low cost of capital.

Linkage between working capital management and firm's value is also explored by Wasiuz-zaman (2015) studied in case of emerging markets. For this purpose, she took the data of Malaysian firms and on the basis of results of the study it was concluded that reduction in working capital management is positively associated with the firm's market value. However, she further reported that this linkage is subjective to the financial constrained faced by the business. The firms facing financial constraints shows positive association between reduction and working capital and firms market value

while those having no financial constraints do not hold this relationship.

Ademola and Kemisola (2014) studied how working capital management influences the value of firm taking data of manufacturing firms of Nigeria. On the basis of their findings they concluded that working capital management has significant influence on the market value of the firms. They further suggested that managers must consider the proper management of working capital while taking any financial decision as it can have Impact on the shareholder's wealth.

Autukaite and Molay (2014) studied the impact of cash holdings and working capital on firm's value. To investigate the relationship among the variable researchers took the data from the companies of France. The results suggested that holding excess cash and working capital management undervalue the shareholder's wealth. They further suggested that management must not undervalue the working capital and cash holdings importance as it can be very costly for the firm otherwise.

Targeting to explore the connection of working capital management, value of firm and profitability Ogundipe, Idowu, and Ogundipe (2012) took data from 54 firms (non-financial) listed at Nigerian Stock exchange. Findings of their research showed the existence of a negative & significant link cash cycle and firm's profitability and between cash cycle and firm's value. There results were in line with the previous literature however, negative relationship in case of CCC and firm's market value was contradictory with the previous literature.

Using the data of Malaysian firms Mohammad et al. (2010) tried to examine the impact of working capital management on firm's market value and profitability. For this purpose, they used multiple regression and Pearson correlation techniques. Findings of their study confirmed that cash cycle & firm's value and cash cycle & profitability are linked negatively and significantly with each other.

In an attempt to explore the impact of liquidity management on firm's profitability and market value, Wang (2001) took the data from 1555 Japanese firms and 379 firms of Taiwan, listed at their relevant stock exchanges, for 11 years. They conducted a Pearson correlation analysis and confirmed that cash cycle and operating performance of the firm relates negatively. On the other hand, they concluded that a shorter cash conversion cycle causes an increase in the value of the firm. They also suggested that more firms of Japan are having Tobin's Q greater than 1 in the presence of shorter cash conversion cycle.

However, up to the researchers' best knowledge no attempt has been made in Pakistan to explore the influence of cash conversion cycle on market value of firm. Therefore, the present study tried to explore the same said relationship in context of Pakistan. Researchers have explored the said relationship in two folds: i) a combined general analysis is performed using the data of all the selected

firms ii) Secondly, the same relationship is tested for each industry separately. This is done to study the industry to industry differences between the cash cycle and firm's market value linkage.

Hypotheses

H1 : There is a significant relationship between firm's market value and Cash Cycle.

H2 : There is a significant relationship between firm's market value and day's payment outstanding.

H3 : There is significant relationship between firm's market value and day's inventory outstanding.

H4 : There is significant relationship between firm's market value and day's sales outstanding.

Methodology

In order to examine the impact of Cash Conversion Cycle on market value of firm, researchers have taken a sample of 59 companies that are listed at Karachi stock exchange (KSE). These 59 companies are taken from the manufacturing industries listed at KSE. Among these industries are Engineering, Sugar, Fuel & Energy, Chemical, Cement and Textile industry.

Sample and Data Set

Intending to explore the relation of Cash cycle and market value of firm, data on quarterly basis is gathered for 8 years from 2008 to 2015, from the financial report of selected firms. Therefore, in this way panel dataset containing 1888 of firm-year observations is constructed. Given table indicates the details of sample taken from each industry.

Table 1
Percentage of Sample from Each Selected Industry

Name of Industry	Total no. of firms	No. of Firms selected	% Sample
Engineering	14	10	71%
Chemical	33	11	33%
Fuel & Energy	12	9	75%
Sugar	24	9	37.50%
Cement	18	11	61%
Textile	92	9	10%

Variables and their Description

The selection of variables to examine the connection of cash cycle & firm's value is largely inclined by the previous literature. To estimate Firm's value, Tobin's Q is used as a proxy. Here, researchers not only measured the relationship between cash conversion cycle but also attempted to explore the link between individual components of cash conversion cycle namely day's inventory outstanding, day's payment outstanding and day's sales outstanding & firm's value. Also, along with these independent and dependent variables, few control variables have also been used in this study including current liability to total liability ratio, firm size, current ratio, ratio of debt to total asset and fixed asset to total asset.

Table 2
Formulas of Variables

Variable and Proxies	Formula and Description
Cash Conversion Cycle	$\text{Days inventory outstanding} + \text{Days sales outstanding} - \text{day's payment outstanding}$
Tobin's Q	$\text{Book Value to liabilities} + \text{Market Value of owner's equity} / \text{Book Value of assets}$
Day's in sales outstanding	$(\text{Trade Receivable} / \text{Credit sales}) * 365$
Day's payment outstanding	$(\text{Creditors} / \text{On-Account Purchases}) * 365$
Day's Stock outstanding	$365 / \text{Stock turnover ratio}$
Debt to asset	$\text{Total long term} + \text{short term debt} / \text{Book value of total assets}$
Non-current Assets to Total assets	$\text{Book value of Non-current assets} / \text{book value of total assets}$
Current Liabilities to Total Liabilities	$\text{Current Liabilities} / \text{Total Liabilities}$

Econometric Model

Prior studies have confirmed the fact that firm value is usually significantly related to its own lagged term. Therefore, in this present study researchers have also included the lagged dependent variable as independent variable. Hence the model will be

$$TBQ = \beta_0 + \beta_1 TBQ_{i,t-1} + \beta_2 CLTC_{i,t-1} + \beta_3 FATA_{i,t-1} + \beta_4 CATA_{i,t-1} + \beta_5 lnsales_{i,t-1} + \beta_6 de_ratio_{i,t-1} + \beta_7 TDTA_{i,t-1} + \beta_8 CCC_{i,t-1} + e_{it} \dots\dots\dots (a)$$

Since, the Panel data violates few assumptions of ordinary least square estimation technique, therefore, it is not considered an efficient statistical approach for panel data. However, fixed effects model and/or random effects model are usually acceptable approaches for panel data set but under certain conditions. As, it can be seen that above stated model is an autoregressive (endogenous) model therefore, in the presence of lagged dependent variable, fixed effect model generate biased results. According to Nickell (1981), in the presence of endogenous variable the bias can be zero if data is taken on larger time horizons. So, it can have concluded that in the presence of endogeneity fixed effect model can only be appropriate to use if data has been gathers for long time frames.

Alternatively, if time period is small to moderate one cannot use fixed effect approach rather will shift to several other estimation techniques available for panel data (In the presence of endogeneity). These estimators are mainly:

- Kiviet (1995), corrected LSDV estimator approach
- Arellano, Bond (1991), 2 stage GMM estimation approach
- Anderson, Hsiao (1981), instrumental variable approach

In the present study researchers have used GMM estimation approach proposed by Arellano and Bond (1991) to estimate the above stated econometric model.

Why the Arellano – Bond GMM estimator?

Cash Cycle and firm’s value can be examined using following model.

$$TBQ = \beta_0 + \beta_1 TBQ_{i,t-1} + \beta_2 CLTC_{i,t-1} + \beta_3 FATA_{i,t-1} + \beta_4 CATA_{i,t-1} + \beta_5 lnsales_{i,t-1} + \beta_6 de_ratio_{i,t-1} + \beta_7 TDTA_{i,t-1} + \beta_8 CCC_{i,t-1} + e_{it} \dots\dots\dots (1)$$

Basic Distinctiveness of the model

1. There are some characteristics of the error term that are time invariant (fixed effect). Therefore, it can be said that error term may comprised of some observation-specific effects

it that are overlooked as well as some unseen company-specific effects via error term

$$\mu_{it} = \nu_i + e_{it}$$

2. The company-specific fixed distinctive features (time invariant), like strengths of a company, its management and competitive advantage etc may correlate with the regressors included in the model.
3. One of the explanatory variable $\beta_1 TBQ_{i,t-1}$ that is integrated as lagged dependent variable in the model actually give rise to autocorrelation.

FE model can only be employed for the models having above mentioned 1 and 2 characteristics. But in the presence of 3rd problem fixed effect estimation technique cannot be used. Therefore, in this situation difference GMM proposed by Holtz-Eakin, Newey and Rosen (1988) or Arellano – Bond (1991) GMM estimation can be the best estimation techniques.

To resolve the 2nd issue discussed above through difference GMM take the first-difference of equation (1):

$$TBQ_{it-1} = \beta_0 + \beta_1 CATA_{it-1} + \beta_2 lnsales_{it-1} + \beta_3 TDTA_{it-1} + \beta_4 FATA_{it-1} + \beta_5 CLTA_{it-1} + \beta_6 debtratio_{it-1} + \beta_7 CCC_{it-1} + \beta_8 TBQ_{it-2} + \nu_i + e_{it} \dots\dots\dots (2)$$

Deducting equation (1) from (2):

$$\Delta TBQ = \Delta \beta_1 TBQ_{i,t-1} + \Delta \beta_2 CLTC_{i,t-1} + \Delta \beta_3 FATA_{i,t-1} + \Delta \beta_4 CATA_{i,t-1} + \Delta \beta_5 lnsales_{i,t-1} + \Delta \beta_6 de_ratio_{i,t-1} + \Delta \beta_7 TDTA_{i,t-1} + \Delta \beta_8 CCC_{i,t-1} + \Delta e_{it} \dots\dots\dots (3)$$

Here the first difference is taken to eliminate the unobserved time invariant company-specific effects, ν_i . Then the GMM estimation technique instruments lagged dependent variable included in the above model explanatory variable to its past levels in order to resolve problem 3. So, it means using GMM estimation technique help resolving all these problems and produce unbiased and efficient results. That’s why in order to find the true and unbiased results GMM estimation technique is used in this present study. Therefore, the econometric models to measure the impact of cash conversion cycle and its component on firm’s market value through GMM Estimation technique are:

$$\Delta TBQ = \Delta \beta_1 TBQ_{i,t-1} + \Delta \beta_2 CLTC_{i,t-1} + \Delta \beta_3 FATA_{i,t-1} + \Delta \beta_4 CATA_{i,t-1} + \Delta \beta_5 lnsales_{i,t-1} + \Delta \beta_6 de_ratio_{i,t-1} + \Delta \beta_7 TDTA_{i,t-1} + \Delta \beta_8 CCC_{i,t-1} + \Delta e_{it} \text{ (Model 1)}$$

$$\Delta TBQ = \Delta \beta_1 TBQ_{i,t-1} + \Delta \beta_2 CLTC_{i,t-1} + \Delta \beta_3 FATA_{i,t-1} + \Delta \beta_4 CATA_{i,t-1} + \Delta \beta_5 Insales_{i,t-1} + \Delta \beta_6 de_ratio_{i,t-1} + \Delta \beta_7 TDTA_{i,t-1} + \Delta \beta_8 DPO_{i,t-1} + \Delta e_{it} \text{ (Model 2)}$$

$$\Delta TBQ = \Delta \beta_1 TBQ_{i,t-1} + \Delta \beta_2 CLTC_{i,t-1} + \Delta \beta_3 FATA_{i,t-1} + \Delta \beta_4 CATA_{i,t-1} + \Delta \beta_5 Insales_{i,t-1} + \Delta \beta_6 de_ratio_{i,t-1} + \Delta \beta_7 TDTA_{i,t-1} + \Delta \beta_8 DSO_{i,t-1} + \Delta e_{it} \text{ (Model 3)}$$

$$\Delta TBQ = \Delta \beta_1 TBQ_{i,t-1} + \Delta \beta_2 CLTC_{i,t-1} + \Delta \beta_3 FATA_{i,t-1} + \Delta \beta_4 CATA_{i,t-1} + \Delta \beta_5 Insales_{i,t-1} + \Delta \beta_6 de_ratio_{i,t-1} + \Delta \beta_7 TDTA_{i,t-1} + \Delta \beta_8 DIO_{i,t-1} + \Delta e_{it} \text{ (Model 4)}$$

Whereas:

- TBQ = Tobin's Q
 DIO = Days in inventory outstanding
 DPO = Days in payment outstanding
 DSO = Days in sales outstanding
 CCC = Cash Conversion Cycle

Estimations and Results

The present study estimates the linkage of cash cycle, its components & firm's value in two different aspects i) at first, researcher conducted industry-wise analysis between the said variables ii) then in the second step, a general combined estimation is performed to conclude a general connection among the variables.

Model 1:

To test the 1st hypotheses given model is analyzed through GMM estimation method and the findings are presented in following table:

$$\Delta TBQ = \Delta \beta_1 TBQ_{i,t-1} + \Delta \beta_2 CLTC_{i,t-1} + \Delta \beta_3 FATA_{i,t-1} + \Delta \beta_4 CATA_{i,t-1} + \Delta \beta_5 Insales_{i,t-1} + \Delta \beta_6 de_ratio_{i,t-1} + \Delta \beta_7 TDTA_{i,t-1} + \Delta \beta_8 CCC_{i,t-1} + \Delta e_{it}$$

Table 3
Estimations of Relationship of CCC and Firm's market value

Industry Name	β of CCC	S. Errors	P-Value
Chemical	-0.00219	-0.000685	0.0018
Engineering	-0.0000904	-4.52E-05	0.0488
Textile	0.0002619	-0.001415	0.00676
Cement	0.00000216	-1.08E-05	0.2456
Fuel and Energy	-0.000331	-9.21E-05	0.0006
Sugar	0.0000548	-4.46E-05	0.2417

Upon carefully analyzing the results presented in the table above it can be confirmed that there exists positive link between firm value and Cash Conversion Cycle in cement, Sugar & textile industry. Contrary to this rest of three industries showed negative relation indicating long cash cycle put negative influence the value of firms. This negative linkage between CCC and TBQ is in line with the findings Muhammad and Marisa (2010), and Wang (2001). One of the possible reasons of this negative linkage between the said variables is that, firms who manage getting back the cash from the cycle shortly; can utilize this free cash for profitable investment thereby increase their returns. The increased returns help creating a positive influence on the share price increasing ultimately the market value of the firm.

Contrary to this, the positive relationship between CCC and TBQ indicating that longer cash cycle is associated with higher firm's value. This positive relationship can be explained through the fact that the when cost of retaining cash in current assets through piling up the inventories or/and extending credit limit of debtors, is much less as compared to the cost of lost sales due to unavailability of inventories in time and granting credit for shorter time span.

Model 2:

To test the 2nd hypotheses given model is analyzed through GMM estimation method and the findings are presented in following table:

$$\Delta TBQ = \Delta \beta_1 TBQ_{i,t-1} + \Delta \beta_2 CLTC_{i,t-1} + \Delta \beta_3 FATA_{i,t-1} + \Delta \beta_4 CATA_{i,t-1} + \Delta \beta_5 \ln sales_{i,t-1} + \Delta \beta_6 de_ratio_{i,t-1} + \Delta \beta_7 TDTA_{i,t-1} + \Delta \beta_8 DSO_{i,t-1} + \Delta e_{it}$$

Table 4
Estimation of Relationship of DSO and Firm's market value

Industry Name	β of DSO	S. Errors	P-Value
Chemical	-0.001338	-0.000695	0.0572
Engineering	-0.0000914	-4.28E-05	0.0345
Textile	0.005489	-0.00242	0.0259
Cement	-0.000705	-0.000318	0.0286
Fuel and Energy	-0.004134	-0.000405	0
Sugar	-0.000624	-0.000179	0.0008

Researchers have also studied TBQ and components of CCC individually through GMM estimation approach. The results presented in the above table, clearly indicate that TBQ and DSO (days sales outstanding) relates negatively in case of all industries (excluding textile industry). This negative connection indicates that shorter collection periods lead to improve the value of firm. One of the possible reasons of this negative linkage between the said variables is that, firms who manage getting back cash from the cycle shortly; can utilize this free cash for profitable investments thereby increase their returns. The increased returns help creating a positive influence on the share price increasing ultimately the market value of the firm.

Contrary to this, the positive relationship of DSO and TBQ indicating that longer DSO is associated with higher firm's value. Indeed, some industries have been allowed to increase credit limits and long-term lines of credit to attract the customers. If companies in these industries do not comply with this code, they may lose customers, which can lead to lower returns that can hurt their value.

Model 3:

The 3rd hypothesis is tested using given model and is analyzed through GMM estimation method and the findings are presented in following table:

$$\Delta TBQ = \Delta \beta_1 TBQ_{i,t-1} + \Delta \beta_2 CLTC_{i,t-1} + \Delta \beta_3 FATA_{i,t-1} + \Delta \beta_4 CATA_{i,t-1} + \Delta \beta_5 \ln sales_{i,t-1} + \Delta \beta_6 de_ratio_{i,t-1} + \Delta \beta_7 TDTA_{i,t-1} + \Delta \beta_8 DIO_{i,t-1} + \Delta e_{it}$$

Table 5
Estimation of Relationship of DIO and Firm's market value

Industry Name	β of DIO	S. Errors	P-Value
Chemical	-0.000488	0.000372	0.2752
Engineering	0.000115	9.58E-05	0.2323
Textile	0.000412	0.00025	0.1002
Cement	0.0000306	8.28E-05	0.7119
Fuel and Energy	-0.0025	0.0001072	0.0223
Sugar	-0.00172	2.98E-06	0

The results presented in the above table, clearly indicate that TBQ and DIO (days sales outstanding) relates negatively in 3 of industries including fuel & energy, sugar and chemical. While in rest of 3 industries said variables are found to have a positive linkage. It is evident from the table presented above that engineering industry's coefficient of DIO is statistically insignificant.

The negative relation in DIO and TBQ shows that faster a company sells a product, the higher its market value. This is because that the less time a company takes to sell a product, the better its sales. These higher sales will allow the company to make higher profits. Higher inventory turnover days may indicate excess inventory, missing product lines, or ineffective commercial marketing efforts. However, higher inventory turnover rates may be appropriate, for example when inventory levels are high, in anticipation of rapid price increases and anticipated market shortages. This may be because days with high inventory turnover rates have a positive relationship with the market value of firms in the engineering sector.

Model 4:

To test the 4th hypotheses given model is analyzed through GMM estimation method and the findings are presented in following table:

$$\Delta TBQ = \Delta \beta_1 TBQ_{i,t-1} + \Delta \beta_2 CLTC_{i,t-1} + \Delta \beta_3 FATA_{i,t-1} + \Delta \beta_4 CATA_{i,t-1} + \Delta \beta_5 \ln sales_{i,t-1} + \Delta \beta_6 de_ratio_{i,t-1} + \Delta \beta_7 TDTA_{i,t-1} + \Delta \beta_8 DPO_{i,t-1} + \Delta e_{it}$$

Table 6
Estimation of Relationship of DPO and Firm's market value

Industry Name	β of DPO	S. Errors	P-Value
Chemical	-0.000122	-0.000116	0.7314
Engineering	0.0000654	-5.20E-05	0.2111
Textile	0.001063	-0.000324	0.0015
Cement	0.00000283	-7.81E-06	0.7179
Fuel and Energy	0.000502	(8.55 E-05)	0
Sugar	-0.00036	-5.38E-05	0

The results presented in the above table, clearly indicate that in chemical and sugar industries TBQ and DPO relates negatively. Conversely in rest of four said variables are found to have a positive linkage. Moreover, the coefficient of DPO for engineering, chemical & cement industry's is statistically insignificant.

Negative relationships indicate that the longer the payment period, the higher the market value of the company. This may be due to the fact that the punctual or anticipated payment to the supplier guarantees a regular and regular raw materials supplies. This regular supply of materials ensures that the product is always available to the customer and guarantees that there is no delay in the completion of the order, keeping the operation going. This can help attract potential customers, maintain existing customers and increase sales and profits. Profit growth is considered a good thing for investors and gives more value to companies with higher profits. As a result, the shortening of the payment period has a positive relationship with the market value of the corporation.

However, apart from the sugar and chemical industries, there is a positive linkage between payment terms and TBQ. This is because late payments use more cash from others to make higher profits. However, it is possible if there is no issue of raw-material availability and greater numbers of suppliers are available. Therefore, DPO and TBQ are closely and positively related in these industries.

Combine Analysis

After analysing the industry to industry relationship of cash cycle & firm's value, in the subsequent stage the general linkages of cash cycle, its components & firm's value is studied and presented in Table 7.

Table 7

Estimation of the Relationship of CCC, individual components of CCC & Firm's Market Value

Industry Name	β Coefficient	S. Errors	P-Value
DSO	-0.000598	0.0001791	0.0008
CCC	-0.000056	0.0000193	0.0033
DIO	0.000033	0.0000108	0.0017
DPO	0.000022	0.0000073	0.0023

The aforementioned table displays the over-all affiliation among the dependent variable TBQ and Cash Cycle and its gears i.e. DIO, DSO & DPO individually.

The outcomes disclosed that firm's market value & CCC and DSO & firms market value relates negatively and significantly. However positive relationship is confirmed between DPO and firm's value and between DSO and firm's value.

Conclusion

On the basis of estimation and results it is cleared that the impact of cash conversion cycle on firm's value varies from one industry to other. The reason of this variation from industry to industry is mainly due to the fact that industries have their own particular and distinct features ranging from its management expertise & skills to technological advancements, that uniquely influence the connection between its cash cycle and value. Result indicates that cash cycle and firm's value are linked positively for textile industry while rest of the industries showed the negative relationship between the two variables. Furthermore, the findings indicate that cash conversion cycle and day's sale outstanding are linked positively in cement, fuel & energy and textile industries and rest of three industries showed negative connection between the two. Similarly, the findings confirmed the existence of a negative link between DIO and firm value in textile industry while rest of all show positive connection. Finally, results showed that existence of negative connection in day's payment outstanding and value of firm in textile, chemical & sugar industries while rest of 3 industries showed opposite relationship.

Lastly, the results of general combined analysis confirmed that firm's value & cash cycle and DIO and firm's value are linked negatively with each other. Contrary to this, DPO and firm value both are positively linked with the value of firm. All these relations are found to be significant statistically.

Recommendations

As, results have shown that cash conversion cycle and its component have a significant influence on the value of firm, therefore, it is recommended to the business concerns to manage and control the day's payment outstanding, day's sales outstanding, day's inventory outstanding and cash conversion cycle in order to maximize the value of the firm. Furthermore, business concerns must consider the following points while managing their cash conversion cycle:

- In the expectation of future inflation, businesses must analyze that whether the cost of holding and storing inventory is less than the cost of inflation. If cost of inflation is higher businesses must buy and store the inventory, not otherwise.
- Businesses must consider and study the credit policy of all the other players in the industry. In order to analyze whether their credit policy is relaxed and tighten as compare to their credit terms and conditions and then manage according.
- Lastly, if availability of raw material is abundant and large number of suppliers are available then supply of raw material will not be affected by delay in the credit payments otherwise it can have adverse effects.

References

- Anderson, T. W., & Hsiao, C. (1981). Estimation of dynamic models with error components. *Journal of the American statistical Association*, 76(375), 598-606.
- Ademola, O. & Kemisola C. The Effect of Working Capital Management on Market Value of Quoted Food and Beverages Manufacturing Firms in Nigeria. (2014). *International Journal of Business and Social Science*, 5(1), 168-177.
- Autukaite, R., & Molay, E. (2011, May). Cash holdings, working capital and firm value: Evidence from France. In *International conference of the French Finance association (AFFI)*.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The review of economic studies*, 58(2), 277-297.
- Ganesan, V. (2007). An analysis of working capital management efficiency in telecommunication equipment industry. *Rivier academic journal*, 3(2), 1-10.
- Makelainen, E. (1998). Economic Value Added as a management tool. *Disponibleem*.
- Mathuva, D. (2015). The Influence of working capital management components on corporate profitability.
- Mohamad, N. E. A. B., & Saad, N. B. M. (2010). Working capital management: The effect of market valuation and profitability in Malaysia. *International Journal of Business and Management*, 5(11), 140.
- Nazir, M. S., & Afza, T. (2009). Impact of aggressive working capital management policy on firms' profitability. *IUP Journal of Applied Finance*, 15(8), 19.
- Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica: Journal of the Econometric Society*, 1417-1426.

- Ogundipe, S. E., Idowu, A., & Ogundipe, L. O. (2012). Working capital management, firms' performance and market valuation in Nigeria. *World Academy of Science, Engineering and Technology*, 61(1), 1196-1200.
- Uyar, A. (2009). The relationship of cash conversion cycle with firm size and profitability: an empirical investigation in Turkey. *International Research Journal of Finance and Economics*, 24(2), 186-193.
- Voortman, C. (2004). *Global logistics management*: Juta and Company Ltd.
- Wang, Y.-J. (2002). Liquidity management, operating performance, and corporate value: evidence from Japan and Taiwan. *Journal of multinational financial management*, 12(2), 159-169.
- Wasiuzzaman, S. (2015). Working capital and firm value in an emerging market. *International Journal of Managerial Finance*, 11(1), 60-79.
- Zariyawati, M. A., Annuar, M. N., Taufiq, H., & Rahim, A. A. (2009). Working capital management and corporate performance: Case of Malaysia. *Journal of Modern Accounting and Auditing*, 5(11), 47.

COMPARING FORECASTING PERFORMANCE OF LINEAR AND NON-LINEAR TIME SERIES MODELS

Tayyab Raza Fraz¹, Javed Iqbal² and Mudassir Uddin³

Abstract

Time series modelling and the forecasting of economic, financial time series is an active and fascinating area of research due to the presence of structural changes i.e. political regimes, business cycle variations and financial crises etc. In these cases, a careful handling is required to model time series when nonlinearity present in the data. Due to the nonlinear behavior of economic and financial time series, it is not possible to rely only on predictions from the simple estimated linear time series models. This study aims to explore and compare the forecasting performance time series models i.e. linear Autoregressive (AR) model with two nonlinear regime switching models namely Markov Regime Switching Autoregressive (MSAR) and Self-Exciting Threshold Autoregressive (SETAR). Macroeconomic variables i.e. interest rate, inflation (CPI), industrial production, GDP growth, and exchange rate from some developed and developing countries included G7 countries are chosen for this study. Quarterly based time series data from 1970 to 2016 is used. Empirically, the forecast performance of nonlinear time series model namely SETAR is found to be superior to the linear Auto Regressive model as well as nonlinear MSAR model. The results are evaluated on the basis of forecast accuracy criteria namely RMSE, MAE and MAPE.

Keywords : GDP Growth, Markov Regime Switching Autoregressive (MSAR), Self-Exciting Threshold Autoregressive (SETAR). Interest Rate, Inflation (CPI).

JEL Classification: G000

Introduction

Forecasting future path of economies is highly valuable to policy makers, government agencies, business managers, investors, and financial analysts. Many economic models stipulate

¹ Lecturer, Department of Statistics, University of Karachi, Karachi, Pakistan. Email: tayyab.fraz@uok.edu.pk

² Associate Professor, Institute of Business Administration (IBA), Karachi, Pakistan. Email: jiqbal@iba.edu.pk

³ Professor, Department of Statistics, University of Karachi, Karachi, Pakistan. Email: muddin@uok.edu.pk

expectation of economic variables. For example, the expectation augmented by Phillips curve employs expected future inflation in modeling current inflation. Discounted cash flow model of stock price specifies stock price as a discounted value of expected future dividends. Pricing of derivatives products requires an estimate of expected volatility over the course of its life. As future is uncertain by its very nature, it becomes arduous and challenging for researchers to conjure a satisfactory forecasting model. There is always needed an effort to secure a reliable forecasting model, however, the development continues for the superior fitting and estimating the best forecasting models. A basic cause due to which a forecasting model fails is the ignorance of the characteristics of parametric nonlinearity in economic variables. Andersen and Vahid (1998) shows that the linear forecast models do not have the ability to understand the irregular particulars of the data. Also, these traditional linear estimated models forecast the symmetric pattern of shocks (positive and negative) on the time series variable which is unreliable with the observed asymmetric outcome. An indication of successful forecast of macroeconomic variables is to deal cautiously with the nonlinearity present in the data. The overall environment of economy be determined by some of the main macroeconomic financial time series variables namely exchange rates, industrial production, gross domestic product, interest rate as well as inflation. Better modeling and forecasting techniques of these variables are the ultimately key to success in managing the macro economy. This motivates the ongoing research in macroeconomic forecasting.

The well-known linear models such as the simple autoregressive estimation are usually used to estimate the models for the economic and financial data. The famous linear time series modeling strategy i.e. the traditional Box-Jenkins approach is built on linear autoregressive integrated moving average time series model. These models are used in every field for the purpose of forecasting regardless of the nature of non-linearity inherent in data. As such these linear models may not perform satisfactorily to overcome the issue of nonlinear behavior of time series. Since the past few decades, the researchers show enormous concern in estimation and forecasting the nonlinear time series.

As Terasvirta (2002) points out there exist a large amount of nonlinear models which is impossible to review in a single study. Furthermore, since the last two decades, a good amount of research has focused on nonlinear models to augment the application of widely used linear time series models. Some nonlinear time series models are estimated mostly for the second moment forecast of conditional volatility in the data i.e. Granger and Anderson (1978) estimated the bilinear model, Engle (1982) also estimated the ARCH model while Bollerslev (1986) estimated and present the generalized ARCH (GARCH). According to Franses and Dijk (2000), nonlinear models especially regime-switching models are widely estimated and used to forecast by the researchers. They are also appreciated by many researchers and forecasters. Few years before, Clements and Smith (1997) pointed out that the linear AR model provides better out of sample and in-sample fit as compared to the any other time series model. Similarly, some researchers also studied and revealed that the non-linear time series

models are not a bench-mark for better forecasts against the linear Autoregressive time series models [For details see Diebold (1990), and De Gooijer and Kumar (1992)].

In this study, the main focus was on the forecasting performance of the nonlinear models. Considering two most famous nonlinear time series models namely MSAR and SETAR. Regime switching models are designed especially for modeling the distinct behavior of time series, which generates the data. Regime switching models permit the quick change between regimes but every regime model has a different approach to model the movements between the regimes. The main difference between MSAR models and SETAR models is actually the movement between regimes. In the MS-AR which shows no regard for its past values. While in the SETAR model the movement between regimes is related to the past values. According to Clements and Krolzig (1998), the MS-AR and SETAR models have a higher level of capability of capturing nonlinear behavior of business cycles as compared to linear models. Nevertheless, the power of forecasting of these models is not as superior as expected.

The study uses the macroeconomic data of both developed and developing countries in the analysis. Higher dependence on agriculture, underutilized natural resources, demographic characteristics, socio culture bonds, dualistic nature of economy etc., are the characteristics of developing countries which differentiate them from the developed countries. Thus the structure of macro economy in developing countries is different from the developed countries. Therefore, data of both types of countries are employed.

Quarterly data sets of five most important macroeconomic variables are used which characterize an economy namely interest rate, inflation, GDP growth, exchange rate and industrial production from 1970 to 2016. The developed countries included in analysis are four of the G7 countries Canada, Japan, United Kingdom (UK) and United States (US) and Australia while the developing countries used are the three BRICS countries i.e. Brazil, India, South Africa and Turkey. However, some series have a shorter sample range depending on availability. The parameters of the respective models are estimated and used model selection criteria for the comparison of out-of-sample fit of linear autoregressive AR models, SETAR and MSAR models.

A contribution of this study is to include some important developed countries i.e. the G7 countries and important developing countries i.e. the BRICS countries in the same analysis to evaluate the forecasting performance of linear and nonlinear time series models. Most of the earlier studies have used data from only the developed countries. Keeping in view the distinct structure of the two types of economies it is important to employ the data of both.

Forecasting Models

Linear autoregressive (AR) models

The traditional linear model i.e. AR model is considered only in this study, related to the time-series approach from Box and Jenkins (1970). Kunst (2012) revealed that the linear Autoregressive model is the common linear time series model due to its characteristics i.e. assessing and estimating the model under the assumptions of ordinary least squares regression (OLS). Following these researches, only AR model are used. A process that characterizes the AR model is the autoregressive first order process:

$$y_t = \mu + \phi_1 y_{t-1} + u_t \dots\dots\dots(1)$$

The intercept parameter is “ μ ” while the uncorrelated random error is presented by u_t having mean zero and variance σ^2 . According to Akaike (1973), the order of AR lag q , is selected to minimize AIC, such that:

$$AIC(q) = \ln(\hat{\sigma}^2(q)) + 2(q + 2)/T$$

Where $\hat{\sigma}^2 = \sum \hat{u}_i^2 / (T - 2)$ but only considered the first four order lags. Longer lag orders never gives appropriate and better forecast [Clements and Smith (1997)]. The AR model is a special case of the more general ARMA models.

Self-exciting threshold autoregressive models

TAR model i.e. threshold autoregressive models is the simplest nonlinear threshold model that contains linear specifications separately and regime-switching. These tremendous procedures were firstly introduced by the renowned researcher namely Tong (1978). When w_t is taken as a lagged value itself, in time series, i.e. $w_t = y_{t-g}$ for a certain integer $g > 0$ then as a result, a new model is established which is SETAR model. According to Kahraman et al. (2012), nonlinear model i.e. SETAR model has always gain attention from the researchers because it contains linear function piecewise without any boundaries with respect to its applications.

If $g = 1$ and an autoregressive AR(1) model is assumed, a two regime SETAR model is given by:

$$y_t = \begin{cases} \alpha_{0,1} + \alpha_{1,1}y_{t-1} + e_t & \text{if } y_t \leq c, \\ \alpha_{0,2} + \alpha_{1,2}y_{t-1} + e_t & \text{if } y_t > c, \end{cases} \dots\dots\dots(2)$$

where e_t are independently and identically distributed white noise sequence conditional upon the time series history π_{t-1} where $\pi_{t-1} = \{y_{t-1}, y_{t-2}, \dots, y_{1-(q-1)}, y_{1-q}\}$, so that, $E[e_t | \pi_{t-1}] = 0$ and $E[e_t^2 | \pi_{t-1}] = \sigma^2$

Equation 2 can be written by another way which is:

$$y_t = (\alpha_{0,1} + \alpha_{1,1}y_{t-1})(1 - \beta[y_{t-1} > c]) + (\alpha_{0,2} + \alpha_{1,2}y_{t-1})\beta[y_{t-1} > c] + e_t \dots\dots\dots (3)$$

Where, $\beta[I]$ is actually an indicator function such that if $\beta[I]=1$ if event I occurs while $\beta[I] = 0$ otherwise.

For higher order AR models, for different regimes such as two regime case, the order of AR can be set to q_1 and q_2 in the lower regime and upper regime respectively. Hence, the SETAR model can be written as:

$$y_t = \begin{cases} \alpha_{0,1} + \alpha_{1,1}y_{t-1} + \dots + \alpha_{q_1,1}y_{t-q_1} + e_t & \text{if } y_{t-1} \leq c, \\ \alpha_{0,2} + \alpha_{1,2}y_{t-1} + \dots + \alpha_{q_2,2}y_{t-q_2} + e_t & \text{if } y_{t-1} > c, \end{cases} \dots\dots\dots (4)$$

Markov regime switching models

According to Terasvirta and Timo (2005), the Markov Regime Switching autoregressive model (MS-AR):

$$y_t = \begin{cases} \alpha_{0,1} + \alpha_{1,1}y_{t-1} + e_t & \text{if } z_t = 1 \\ \alpha_{0,2} + \alpha_{1,2}y_{t-1} + e_t & \text{if } z_t = 2 \end{cases} \dots\dots\dots (5)$$

Hence,

$$y_t = (\alpha_{0,z_t} + \alpha_{1,z_t}y_{t-1}) + e_t \dots\dots\dots (6)$$

Where $e_t \sim \text{NID}(0, \sigma^2)$. The specification is required for process z_t for the completion of the model.

The famous Markov-Switching model (MSW) was created by Hamilton (1989) which depends on the order of four lags.

$$\begin{aligned} p(z_t = 1 | z_{t-1} = 1) &= w_{11}, \\ p(z_t = 2 | z_{t-1} = 1) &= w_{12}, \\ p(z_t = 3 | z_{t-1} = 2) &= w_{21}, \\ p(z_t = 4 | z_{t-1} = 2) &= w_{22}, \end{aligned}$$

Hence, z_t is the Markov Process' first order.

Therefore, w_{ij} is equal to the probability that a Markov chain moves from state i at time $t-1$ to state j at time t . i.e. $w_{11} + w_{12} = 1$ and $w_{21} + w_{22} = 1$. With finite states, an ergodic Markov chain i.e.

$$P(z_t = 1) = \frac{1 - w_{22}}{2 - w_{11} - w_{22}} \dots\dots\dots(7)$$

$$P(z_t = 2) = \frac{1 - w_{11}}{2 - w_{11} - w_{22}} \dots\dots\dots(8)$$

As pointed out by Deschamps (2008) the difference between the MSAR and the TAR model is that MSAR uses less prior information than the later model. Also the SETAR model requires the choice of a transition variable while the MSAR estimates transition function flexibly from the data.

Hsu, et al. (2010) studied the forecasting ability of traditional ARIMA model and nonlinear SETAR models. They used the data stock prices. According to Hsu, et al. (2010), the economic environment changes from time to time, therefore, the stock market often depends on change over time. They used Chow breakpoint test to choose the breakpoint for the SETAR model according to Hansen (2001). They made their results using the MSE, MAE, AMAPE, and MAPE information criteria's which strongly favored the SETAR model due to the superior forecasting ability over ARIMA model (Shin, 1992). Furthermore, he also discussed about other famous tests i.e. Phillips and Perron (1988) and ADF by Dickey and Fuller (1979) and (1981). Estimated results from these unit root tests may be biased. Perron (1989) revealed that mostly a unit root in various macroeconomic and financial variables is absent. Hence, to identify the unit root in any time series data set, the unit root breakpoint is used. Akaike criterion (AIC) and Schwarz criterion (BIC) are adopted for the matter of length of lag, two selection methods for Breakpoint test are used, one is F-statistic while the second is Schwarz (BIC) criterion.

Empirical Findings and Discussion

Breakpoint unit root test

In case of macroeconomic variable GDP growth for all the countries, break point unit root test results revealed that unit root is not present. Nevertheless, results also revealed the unit root is present in remaining macroeconomic time series for most countries i.e. inflation, industrial production, interest rate and exchange rate.

Table 1
Break point unit root test

<i>Economic Indicators</i>	Break-point Unit Root	Australia	Brazil	Canada	India	Japan	South Africa	Turkey	UK	USA
GDP growth	Schwarz	-14.867*	-8.657*	-9.672*	-10.094*	-13.670*	-10.928*	-14.006*	-12.161*	-10.523*
	F-test	-6.949*	-7.35	-5.232**	-8.743*	-6.533*	-10.834*	-8.438*	-7.516*	-5.695**

(Table Continued.....)

<i>log (Exchange rate)</i>	Schwarz	Level	-3.80	-3.06	-2.54	-3.89	-4.88	-2.96	-2.47	-4.42	--
		1st diff	-12.417*	-12.796*	-10.89*	-12.360*	-6.310*	-12.015*	-12.277*	-10.827*	--
	F-test	Level	-4.03	-3.01	-3.19	-3.73	-4.96	-2.61	-3.26	-4.74	--
<i>Interest rate</i>	Schwarz	Level	-6.354*	-7.811*	-6.064*	-4.56	-5.526**	-4.94	-14.004*	-4.18	-6.555*
		1st diff	--	--	--	-19.86*	--	-9.370*	--	-11.345*	--
	F-test	Level	-6.472*	6.965*	-6.064*	-4.56	-6.563*	-4.94	-3.14	-4.85	-6.555*
<i>Log (CPI)</i>	Schwarz	Level	-6.411*	-5.659**	-5.449**	-4.18	-5.390**	-5.179**	-4.35	-4.77	-4.71
		1st diff	--	--	--	-8.644*	--	--	-9.987*	-8.823*	-6.974*
	F-test	Level	-4.13	-5.681**	-5.895*	-4.19	-7.438*	-4.95	-4.16	-3.94	-5.157**
<i>Log (Industrial Production)</i>	Schwarz	Level	-4.094	-5.487**	-5.168	-3.676	-5.608**	-3.489	-3.204	-3.568	-5.139
		1st diff	-12.555*	--	-8.437*	-6.641*	--	-14.148*	-11.251*	-12.917*	-7.742*
	F-test	Level	-4.094	-5.487**	-5.168	-3.1717	-4.664	-4.119	-3.244	-4.128	-4.3095
		1st diff	-8.602*	--	--	-5.474**	7.575*	-6.308*	-11.158*	-6.049*	-5.893*

* Significant at 1% and ** Significant at 5% level.

Forecast Evaluation

Table 2a and Table 2b, represent the results regarding the forecasting performance of macroeconomic variables for all the models for short term i.e. 4 quarters ahead and long term i.e. 21 quarters ahead respectively but the results do not favor a particular forecasting model. Moreover, multi-criteria (RMSE, MAE, and MAPE) are used for the comparison of forecasting ability between the models for short term and long term. The model with best forecasting performance corresponding to the linear or nonlinear model has been shown. The results are shown by each macroeconomic time series. Generally, for short-run forecasting as well as long run forecasting, SETAR model produce the lowest forecast accuracy measure in most of the cases.

Table 2a
RMSE, MAP & MAPE for one year (4-Quarters) ahead forecast

RM SE	Country	Exchange rate			GDP growth			Log(CPI)			Interest Rate			Log (Industrial Production)		
		AR	SET AR	MS AR	AR	SET AR	MS AR	AR	SET AR	MS AR	AR	SET AR	MS AR	AR	SET AR	MS AR
	Australia	0.073	0.025	0.957	0.325	0.376	0.370	0.005	0.003	0.003	1.026	0.217	1.132	0.016	0.034	0.011
	Brazil	0.713	0.782	0.687	2.014	2.178	1.950	0.038	0.019	0.071	0.255	0.035	0.165	0.082	0.117	0.687
	Canada	0.054	0.072	0.055	0.341	0.247	0.299	0.015	0.003	0.356	0.731	0.209	3.017	0.066	0.003	0.215
	India	0.056	0.050	0.035	0.335	0.304	0.272	0.045	0.009	0.015	0.602	0.507	0.615	0.016	0.032	0.094
	Japan	0.042	0.025	0.057	0.778	0.600	0.742	0.006	0.006	0.005	0.015	0.062	0.148	0.029	0.041	0.028
	South Africa	2.326	4.028	2.495	0.854	0.984	0.953	0.028	0.020	0.006	0.225	0.224	0.230	0.012	0.007	0.019

(Table Continued.....)

	Turkey	0.36 8	0.003 9	0.38 1	0.19 2	0.222 5	0.17 3	0.0 26	0.026 3	0.02 7	0.61 4	0.182 4	1.45 4	0.00 7	0.009 5	0.01 1
	UK	0.02 1	0.029 1	0.03 1	0.15 5	0.182 3	0.13 3	0.0 06	0.005 5	0.00 7	0.04 8	0.025 0	0.93 2	0.00 7	0.005 5	0.00 5
	USA	--	--	--	0.32 7	0.338 2	0.33 2	0.0 23	0.006 7	0.00 7	0.41 7	0.108 7	0.83 2	0.00 3	0.004 3	0.01 1
MA E	Countr y	AR	SET AR	MS AR	AR	SET AR	MS AR	AR	SET AR	MS AR	AR	SET AR	MS AR	AR	SET AR	MS AR
	Australia	0.06 6	0.023 0	0.87 0	0.28 7	0.290 3	0.30 3	0.0 05	0.002 3	0.00 3	0.98 1	0.162 7	1.07 7	0.01 5	0.033 1	0.01 1
	Brazil	0.63 3	0.686 5	0.60 0	1.93 4	2.077 5	1.87 5	0.0 30	0.016 1	0.06 1	0.23 8	0.033 1	0.14 1	0.07 2	0.105 5	0.60 5
	Canada	0.05 0	0.065 0	0.05 0	0.25 9	0.190 5	0.23 5	0.0 15	0.002 6	0.35 6	0.68 3	0.187 2	2.37 2	0.00 5	0.003 5	0.21 5
	India	0.05 1	0.045 2	0.03 2	0.31 7	0.268 3	0.25 3	0.0 42	0.007 0	0.01 0	0.55 3	0.446 3	0.55 3	0.01 5	0.023 1	0.09 1
	Japan	0.03 1	0.024 3	0.04 3	0.64 6	0.417 5	0.59 5	0.0 05	0.006 4	0.00 4	0.00 8	0.047 9	0.12 9	0.02 8	0.038 8	0.02 7
	South Africa	1.88 0	3.444 0	2.06 0	0.81 5	0.924 0	0.91 0	0.0 27	0.019 5	0.00 6	0.18 6	0.180 3	0.20 3	0.01 2	0.007 9	0.01 9
	Turkey	0.35 2	0.097 7	0.36 7	0.17 6	0.197 4	0.12 4	0.0 23	0.024 0	0.02 0	0.56 2	0.147 3	1.33 3	0.00 5	0.008 8	0.00 8
	UK	0.01 8	0.022 1	0.02 1	0.15 2	0.169 0	0.13 0	0.0 11	0.008 4	0.00 4	0.04 4	0.020 9	0.83 9	0.00 6	0.004 4	0.00 4
	USA	--	--	--	0.29 3	0.309 5	0.29 5	0.2 30	0.005 7	0.00 7	0.40 0	0.085 9	0.78 9	0.00 3	0.003 1	0.01 1
MA PE	Countr y	AR	SET AR	MS AR	AR	SET AR	MS AR	AR	SET AR	MS AR	AR	SET AR	MS AR	AR	SET AR	MS AR
	Australia	4.79 2	1.708 42	63.8 42	62.7 08	73.37 0	71.9 48	0.0 96	0.050 9	0.05 9	43.7 94	7.135 99	48.2 99	0.30 7	0.693 7	0.23 2
	Brazil	16.9 00	18.25 0	16.0 94	194. 412	203.6 00	186. 530	0.5 97	0.314 2	1.22 2	11.2 08	1.550 3	6.70 3	1.62 2	2.357 9	16.0 95
	Canada	3.75 6	4.898 2	3.81 2	196. 860	143.3 70	261. 930	0.3 17	0.044 6	7.58 6	90.3 67	25.46 9	292. 790	0.10 9	0.056 8	4.55 8
	India	1.21 4	1.079 6	0.75 6	15.9 80	13.55 2	12.7 54	0.3 83	0.138 7	0.20 7	7.01 7	5.733 1	7.02 1	0.32 5	0.479 1	1.94 1
	Japan	0.64 2	0.494 2	0.89 2	149. 070	95.79 3	137. 467	0.1 17	0.125 6	0.08 6	4.86 6	27.88 8	76.1 49	0.61 0	0.838 8	0.58 8
	South Africa	12.7 85	23.72 1	14.0 76	499. 624	583.6 10	566. 222	0.5 51	0.392 7	0.10 7	3.02 4	2.841 5	3.34 5	0.25 7	0.148 6	0.40 6
	Turkey	12.2 60	3.443 82	12.7 82	18.6 30	18.18 6	14.1 70	0.4 63	0.473 3	0.40 3	6.24 6	1.638 15	14.8 15	0.10 4	0.174 1	0.17 1
	UK	2.60 6	3.176 9	3.11 9	32.1 15	33.56 9	27.1 56	0.2 25	0.171 7	0.07 7	7.94 4	3.517 386	146. 386	0.12 7	0.096 5	0.09 5
	USA	--	--	--	70.4 79	78.37 2	70.6 62	0.4 93	0.113 4	0.14 4	131. 774	23.87 0	254. 060	0.06 0	0.053 8	0.22 8

Table 2b
RMSE, MAP & MAPE for 5 year (21-Quarters) ahead forecast

RM SE	Country	Exchange rate			GDP growth			Log(CPI)			Interest Rate			Log (Industrial Production)		
		AR	SET AR	MS AR	AR	SET AR	MS AR	AR	SET AR	MS AR	AR	SET AR	MS AR	AR	SET AR	MS AR

(Table Continued....)

	Australia	0.1 46	0.134 4	0.12 4	0.3 66	0.375 3	0.36 3	0.0 50	0.030 0	0.01 0	3.1 67	3.731 0	4.10 0	0.0 94	0.080 4	0.08 4
	Brazil	1.1 23	0.652 2	1.11 2	1.2 73	1.322 1	1.25 1	1.3 40	0.081 5	1.87 5	0.7 60	0.063 2	0.35 2	0.0 56	0.059 0	0.07 0
	Canada	0.1 12	0.119 0	0.12 0	0.4 70	0.485 6	0.47 6	0.7 75	0.011 3	0.03 3	3.2 30	1.422 9	3.01 9	0.0 69	0.019 1	0.06 1
	India	0.3 09	0.287 7	0.17 7	0.4 56	0.557 6	0.65 6	0.2 31	0.032 5	0.02 5	2.4 22	2.141 4	2.14 4	0.0 76	0.248 1	0.19 1
	Japan	0.1 89	0.138 8	0.10 8	1.2 17	1.254 8	1.20 8	0.0 25	0.016 4	0.03 4	0.0 43	0.889 4	0.83 4	0.0 29	0.895 7	0.03 7
	South Africa	4.6 69	3.006 8	4.53 8	0.5 21	0.501 9	0.51 9	0.1 51	0.057 2	0.04 2	2.6 56	2.924 4	3.32 4	0.0 32	0.083 5	0.07 5
	Turkey	0.7 53	0.784 1	0.95 1	0.6 92	0.740 7	0.79 7	0.2 79	0.037 7	0.26 7	5.6 49	5.049 1	9.10 1	0.0 41	0.059 3	0.04 3
	UK	0.0 34	0.050 2	0.04 2	0.3 27	0.339 1	0.34 1	0.0 74	0.020 4	0.04 4	0.1 70	0.187 6	4.44 6	0.0 40	0.048 8	0.05 8
	USA	-- 70	-- 70	-- 70	0.4 70	0.462 8	0.47 8	0.0 61	0.013 3	0.02 3	2.1 74	0.669 4	6.63 4	0.0 91	0.063 1	0.06 1
MA E	Country	AR	SET AR	MS AR												
	Australia	0.1 00	0.087 8	0.08 8	0.2 89	0.289 5	0.28 5	0.0 42	0.028 9	0.00 9	2.7 76	3.297 3	3.61 3	0.0 83	0.070 4	0.07 4
	Brazil	0.8 44	0.421 5	0.83 5	1.0 13	1.076 3	0.99 3	1.0 87	0.067 6	1.35 6	0.7 26	0.143 4	0.32 4	0.0 34	0.053 5	0.04 5
	Canada	0.0 74	0.077 7	0.07 7	0.3 90	0.400 7	0.39 7	0.7 25	0.009 0	0.03 0	2.9 37	1.322 5	2.59 5	0.0 62	0.016 4	0.05 4
	India	0.2 79	0.258 8	0.15 8	0.2 83	0.345 1	0.43 1	0.1 98	0.026 9	0.01 9	2.1 35	1.891 7	1.89 7	0.0 66	0.214 5	0.16 5
	Japan	0.1 58	0.118 2	0.09 2	0.9 39	0.967 0	0.92 0	0.0 18	0.012 4	0.02 4	0.0 41	0.694 3	0.71 3	0.0 23	0.589 0	0.03 0
	South Africa	3.8 41	2.192 4	3.70 4	0.4 24	0.418 9	0.41 9	0.1 28	0.051 1	0.04 1	2.4 13	2.577 7	3.07 7	0.0 28	0.075 7	0.06 7
	Turkey	0.6 01	0.657 1	0.79 1	0.5 68	0.573 3	0.58 3	0.2 24	0.027 4	0.22 4	4.6 99	4.262 0	7.50 0	0.0 34	0.055 5	0.03 5
	UK	0.0 25	0.037 2	0.03 2	0.2 55	0.259 3	0.27 3	0.0 69	0.019 3	0.04 3	0.1 39	0.160 6	4.04 6	0.0 37	0.047 5	0.05 5
	USA	-- 90	-- 90	-- 90	0.3 90	0.373 6	0.39 6	0.0 56	0.012 7	0.01 7	1.9 75	0.598 3	3.40 3	0.0 79	0.056 2	0.05 2
MA PE	Country	AR	SET AR	MS AR												
	Australia	8.1 73	7.063 7	0.73 7	75. 63	75.83 90	75.1 90	0.9 04	0.596 5	0.18 5	106 .3	125.7 10	138. 1	1.7 63	1.498 1	1.58 1
	Brazil	30. 33	15.01 9	29.9 9	646 .2	671.5 21	620. 21	22. 33	1.375 25	22.7 25	38. 87	7.824 8	17.6 8	0.7 59	1.155 8	0.99 8
	Canada	6.0 91	6.346 4	6.32 4	268 .1	280.9 63	272. 63	17. 34	0.197 0	0.64 0	294 .9	132.0 27	254. 8	1.3 20	0.330 4	1.51 4
	India	6.7 96	6.287 9	3.85 9	113 .5	136.3 24	154. 24	4.0 03	0.527 5	0.37 5	24. 23	21.53 4	21.2 4	1.4 13	4.578 7	3.52 7
	Japan	3.3 81	2.535 4	2.00 4	247 .7	251.8 99	235. 37	0.3 82	0.267 8	0.51 8	17. 13	350.6 89	347. 7	0.4 96	12.85 2	0.66 0
	South Africa	34. 26	18.60 0	32.9 0	157 .8	147.8 38	156. 38	2.6 62	1.054 9	0.69 9	43. 12	45.78 0	54.9 0	0.6 04	1.646 8	1.45 8
	Turkey	25. 68	28.65 0	34.4 0	133 .4	134.5 29	132. 12	4.5 47	0.553 4	4.55 4	47. 87	42.97 5	76.8 5	0.7 42	1.182 1	0.76 1
	UK	3.8 85	5.716 0	4.96 0	115 .5	118.1 52	124. 65	1.4 75	0.403 1	0.91 1	21. 07	25.67 6	717. 2	0.8 16	1.017 9	1.19 9
	USA	-- 19	-- 19	-- 19	262 19	238.2 85	268. 85	1.2 01	0.258 3	0.37 3	110 9	364.6 54	1888 70	1.6 70	1.186 4	1.11 4

NOTE: Forecast evaluation criteria techniques MAE, MAPE and RMSE are used.

Exchange rate

The comparison of forecasting performance for short-run forecasting of the exchange rate is presented in Table 2a, while for long run forecasting comparison, the results are shown in Table 2b. Most of the results are in favor of nonlinear models for short-run forecasting. As the SETAR and MS-AR contains the lowest forecasting errors in five out of nine countries for the exchange rate, in which SETAR models technique have better prediction ability performance for exchange rate of Australia, Japan, and Turkey with the lowest forecasting errors. The MS-AR modeling technique is much better for developing countries such as India and Brazil as compared to the SETAR and Linear AR models. But linear AR models is also a suitable technique for the forecasting purpose for developed countries such as Canada and the UK, while it is also a better forecasting technique for South Africa which is a developing country.

For the long run forecasting, the linear AR modeling technique is a better choice for the two developed countries e.g. Canada and the UK. While the SETAR modeling technique has the best forecasting performance as compared to the AR and MS-AR models for Australia and two developing countries Brazil and South Africa. MS-AR modeling technique has the lowest forecasting error for exchange rates of India and Japan (Table 2b).

GDP growth

The Comparison of forecasting techniques for the short-run horizons also takes account for the Gross domestic product of countries, displayed in Table 2a. The best forecasting technique for the GDP growth of Brazil, India, Turkey and the UK is MS-AR technique, using the multi-comparison criteria. Furthermore, SETAR is the best forecasting model for the most developed countries named Canada and Japan. Linear AR modeling technique is better among SETAR and MS-AR for GDP growth of Australia, USA, and South Africa. For long run forecasting (Table 2b), linear AR models are superior for GDP growth of Canada, India, UK and Turkey. SETAR modeling technique is best for South Africa and the USA while the MS-AR modeling technique is far better than linear AR and SETAR for GDP growth of Australia, Brazil, and Japan.

Consumer Price Inflation

The CPI is a measure that studies the average of prices of a consumer goods and services. It is one of the most important macroeconomic variables for any country. The performance for the short-run forecasting for CPI totally supports the nonlinear regime models. The SETAR modeling technique is the best one among all the other forecasting techniques for the CPI for Australia, Brazil, Canada, India, and the USA. While the MS-AR technique is the most suitable and better forecasting modeling technique for Japan, UK, South Africa and Turkey. All the information criteria fully

supported the results. For long run forecasting prospect, again CPI of all countries including developed countries, favors the nonlinear regime models. The SETAR modeling technique has superior forecasting ability for Brazil, Turkey, and all developed countries (included in this study) as compare to the MS-AR technique except Australia, India, and South Africa which has the lowest forecasting errors for MS-AR.

Interest rate

According to the results shown in Table 2a, for short-run forecasting prospect, the SETAR modeling technique is the most superior among the MS-AR and linear AR model for the interest rate of all countries except Japan. For long run forecasting prospect, again SETAR is the most powerful forecasting technique for Brazil, Canada, India, turkey and the USA while the MS-AR is not suitable for the interest rate time series. All in all, the SETAR modeling techniques is the most suitable forecasting technique for the interest rate.

Industrial production

Industrial or manufacturing production is the backbone of the economy of any country. The results can be seen above table for the purpose of short-run forecasting comparison. MS-AR modeling technique has the lowest forecasting error for Industrial production of Australia, Japan, and the UK while SETAR model is a suitable forecasting technique for industrial production of Canada and South Africa. The linear AR model is best among nonlinear models for the remaining four countries. According to our results, the long run forecasting outcome is the most surprising result. As the linear AR modeling technique has the superior forecasting ability for most of the countries except Australia, Canada and USA in which the SETAR and MS-AR are better forecasting techniques.

Conclusion

In this research paper, the forecast performance of two famous regime models namely Self-exciting threshold SETAR models and Markov regime switching autoregressive MSAR models is evaluated viz-a-viz the linear AR model using the data of some important macroeconomic variables namely exchange rate, consumer price inflation, gross domestic product growth, interest rate and industrial production. Quarterly data from 1960 to 2016 are employed from some important developed countries including the G7 countries and some important developing countries including the BRICS countries. The literature has presented conflicting results regarding this comparison. It is found that both the SETAR and MSAR models are empirically more powerful than the linear AR model using the three forecast evaluation criteria by means of shocks and particular characteristics. One of the main reason regarding the inability of the less satisfactory performance of the linear AR models that these generally fail to capture the stylized behavior some economic time series i.e. structural breaks and asymmetries in business cycle recessions and expansions.

In some cases, especially with industrial production, there is evidence suggesting that the forecasting power of nonlinear regime models is not much superior to linear model. In the short-run, the forecasting performance of SETAR model is better than MSAR model for the exchange rate and inflation of different countries. For interest rate variable the forecasting power of SETAR model is superior for all the developed and developing countries.

The MSAR model gives more accurate forecast for GDP growth for most of the countries. However, there is not much difference in the forecasting ability of the MSAR model for exchange rate and inflation. Empirically, the forecasting power of linear AR model is found to be better than nonlinear models in few cases of the exchange rate, GDP growth and industrial production especially for developing countries thus supporting the De-Gooijer and Kumar (1992) conclusion who also found superiority of linear mode's forecast in some cases. For the long run, the forecast performance of the SETAR model is superior to the MSAR and linear AR models for the exchange rate and interest rate and inflation for most of the countries. Overall, it is found that the nonlinear models namely the SETAR and MSAR yield better forecasts. It is also found that the forecasting performance of SETAR model is superior to the MSAR and linear AR models for both the short run and long run forecasting horizons for all the macroeconomic time series related to the developed and developing countries. Thus when nonlinearity and structural changes are present in the time series data, the linear models do not perform satisfactory as compared to the nonlinear models.

References

- Altınay, G. (2005). Structural breaks in long-term Turkish macroeconomic data, 1923-2003. *Applied Econometrics and International Development*, 5(4), 117-130.
- Anderson, H. M., & Vahid, F. (1998). Testing multiple equation systems for common nonlinear components. *Journal of Econometrics*, 84(1), 1-36.
- Bollerslev, T. (1986). Generalized autoregressive conditional heteroskedasticity. *Journal of econometrics*, 31(3), 307-327.
- Clements, M. P., & Krolzig, H. M. (1998). A Comparison of the Forecast Performance of Markov switching and Threshold Autoregressive Models of US GNP. *The Econometrics Journal*, 1(1), 47-75.
- Clements, M. P., & Smith, J. (1997). The performance of alternative forecasting methods for SETAR models. *International Journal of Forecasting*, 13(4), 463-475.
- Clements, M. P., Franses, P. H., & Swanson, N. R. (2004). Forecasting economic and financial time-series with non-linear models. *International Journal of Forecasting*, 20(2), 169-183.
- De Gooijer, J. G., & Kumar, K. (1992). Some recent developments in non-linear time series modelling, testing, and forecasting. *International Journal of Forecasting*, 8(2), 135-156.
- Deschamps, P. J. (2008). Comparing smooth transition and Markov switching autoregressive models of US unemployment. *Journal of Applied Econometrics*, 23(4), 435-462.

- Diebold, F. X., & Nason, J. A. (1990). Nonparametric exchange rate prediction?. *Journal of international Economics*, 28(3-4), 315-332.
- Engel, C. (1994). Can the Markov Switching Model forecast exchange rates?. *Journal of International Economics*, 36(1-2), 151-165.
- Feng, H., & Liu, J. (2003). A SETAR model for Canadian GDP: non-linearities and forecast comparisons. *Applied Economics*, 35(18), 1957-1964.
- Fraz, T.R., & Fatima, S. (2016). Exploring the Impact of Macro Economic Variables on Exchange Rate: A Case of some Developed and Developing Countries. *Pakistan Journal of Applied Economics, Special Issue*, 299-315.
- Glynn, J., Perera, N., Verma, R., (2007). Unit root tests and structural breaks: a survey with applications. *Journal of Quantitative Methods for Economics and Business Administration*, 3(1), 63-79
- Hamilton, J. D. (1989). A new approach to the economic analysis of nonstationary time series and the business cycle. *Econometrica: Journal of the Econometric Society*, 357-384.
- Hsu, K. H., Li, J. F., Lin, Y. B., Hong, C. Y., & Huang, Y. C. (2010). A SETAR Model for Taiwan Stock Exchange Capitalization Weighted Stock Index: Non-linearities and Forecasting Comparisons. Finance paper series, 13(1), 74-88.
- Kosater, P., & Mosler, K. (2006). Can Markov regime-switching models improve power-price forecasts? Evidence from German daily power prices. *Applied Energy*, 83(9), 943-958.
- Kunst, R.M. (2012). Econometric Forecasting. *University of Vienna & Institute for Advanced Studies Vienna*, 41-75.
- Ling, T. Y., Nor, A. H. S. M., Saud, N. A., & Ahmad, Z. (2013). Testing for Unit Roots and Structural Breaks: Evidence from Selected ASEAN Macroeconomic Time Series. *International Journal of Trade, Economics and Finance*, 4(4), 230-237.
- Ramey, V. A. (2016). Macroeconomic shocks and their propagation. *Handbook of macroeconomics*, 2, 71-162.
- Swanson, N. R., & White, H. (1995). A model-selection approach to assessing the information in the term structure using linear models and artificial neural networks. *Journal of Business & Economic Statistics*, 13(3), 265-275.
- Teräsvirta, T. (2006). Forecasting economic variables with nonlinear models. *Handbook of economic forecasting*, 1, 413-457.
- Zhou, C., Wu, Y. L., Chen, G., Feng, J., Liu, X. Q., Wang, C., ... & Lu, S. (2011). Erlotinib versus chemotherapy as first-line treatment for patients with advanced EGFR mutation-positive non-small-cell lung cancer (Optimal, Ctong-0802): a multicentre, open-label, randomised, phase 3 study. *The lancet oncology*, 12(8), 735-742.

Instructions / Guidelines for the Authors

(General Instructions)

1. Papers must be in English.
2. PBR is a business journal covering all subject areas of relevance to business in Pakistan. Research in the areas of Finance, Human Resources, Management, Informatics, Marketing, Business Psychology, Economics and issues related to other business areas are especially encouraged.
3. Submission of a paper will be held to imply that it contains original unpublished work and is not being submitted for publication elsewhere. The editors do not accept responsibility for damages or loss of papers submitted.
4. Manuscripts should be typewritten on one side of the page only, double spaced with wide margins. All pages should be numbered consecutively, titles and subtitles should be short. References, tables and legends for figures should be typed on separate pages. The legends and titles on tables and figures must be sufficiently descriptive such that they are understandable without reference to the text. The dimension of figure axis and the body of tables must be clearly labelled in English.
5. The first page of the manuscript should contain the following information; (i) the title; (ii) the name(s) and institutional affiliation(s); (iii) an abstract of not more than 200 words. A footnote on the same sheet should give the name and present address of the author to whom reprints will be sent.
6. Acknowledgements and information on grants received can be given before the references or in a first footnote, which should not be included in the consecutive numbering of footnotes.
7. Important formulae (displayed) should be numbered consecutively throughout the manuscript as (1), (2), etc., on the right hand side of the page where the derivation of formula has been abbreviated, it is of great help to referees if the full derivation can be presented on a separate sheet (not to be published).
8. Footnotes should be kept to a minimum and be numbered consecutively throughout the text with superscript arabic numerals.
9. The references should include only the most relevant papers. In the text, references to publications should appear as follows: "Khan (1978) reported that..." Or "This problem has been a subject in literature before [e.g., Khan (1978) p. 102]." The author should make sure that there is a strict "one-to-one correspondence" between the names (years) in the text and those on the list. At the end of the manuscript (after any appendices) the complete references should be listed as:
 - For monographs and books*
 - a. Ahmad, Jaleel, 1978, Import substitution, trade and development, Amsterdam: North-Holland, *For contributions to collective works.*
 - b. Newbery, Daved M.G., 1975, The use of rental contract in peasant agriculture, in: Reynods, ed., Agriculture in development theory, New Haven: Yale University Press p.3-40.
 - For periodicals*
 - c. Baumol, W.J., 1982, Applied fairness theory and rational policy, American Economic Review, 72(4): 639561.
 - d. Note that journal titles should not be abbreviated.
10. Illustrations should be provided in triplicate (one original drawn in black ink on white paper and or with two photocopies). Care should be taken that lettering and symbols are of a comparable size. The drawings should not be inserted in the text and should be marked on the back with figure numbers, title of paper and name of author. All graphs and diagrams should be numbered consecutively in the text in Arabic numerals. Graph paper should be ruled in blue and any grid lines to be shown should be inked black. Illustrations of insufficient quality which have to be redrawn by the publisher will be charged to the author.
11. All unessential tables should be eliminated from the manuscript. Tables should be numbered consecutively in the text in arabic numerals and typed on separate sheets. Any manuscript which does not conform to the instructions may be returned for necessary revision before publication.
12. PBR will prefer 6000 words in a research paper.

-
13. The paper should belong to core business subjects. Papers on sports, literature, fiction, biography, fashion, philosophy etc. fall outside the scope of the PBR.
 14. Papers and references should conform to the APA format.

INSTRUCTIONS RELEVANT TO JOURNAL MANAGEMENT SYSTEM

PBR has adopted the Journal Management System which can be accessed by following the link: journals.iobmresearch.com. Submissions, refereeing, contacts with authors, etc are now through the Journal Management System.

Submission Preparation Checklist

1. As part of the submission process, authors are required to check off their submission's compliance with all of the following items, and submissions may be returned to authors that do not adhere to these guidelines.
2. The submission has not been previously published, nor is it before another journal for consideration (or an explanation has been provided in Comments to the Editor).
Manuscripts should be submitted in Microsoft Word .DOCX format, double spaced with wide margins. All pages should be numbered consecutively, titles and subtitles should be short. References, tables and legends for figures should be typed on separate pages. The legends and titles on tables and figures must be sufficiently descriptive such that they are understandable without reference to the text. The dimension of figure axes and the body of tables must be clearly labeled in English.
3. Title page and manuscript should be submitted separately.
4. Information contained in the Title page should be submitted in the Metadata section of the online submission process and must contain with completeness (i) article title; (ii) abstract of not more than 200 words (iii) keywords; (iv) name(s) and institutional affiliation(s) of author(s); (v) name and email address of corresponding author should clearly be mentioned; (vi) A footnote on the same sheet should give the name and present address of the author to whom reprints will be sent.
5. The submission file containing the article must be clear of any information revealing the identity of the author(s).
6. Papers that violate the spirit of the guidelines (e.g., papers that are single-spaced, papers that use footnotes rather than conventional referencing formats, papers that greatly exceed 30 pages), or which do not clearly fit the mission of the journal will be immediately returned to authors without being reviewed.
7. Acknowledgements and information on grants received can be given before the references or in a first footnote, which should not be included in the consecutive numbering of footnotes.
8. Important formulae (displayed) should be numbered consecutively throughout the manuscript as (1), (2), etc., on the right hand side of the page where the derivation of formula has been abbreviated, it is of great help to referees if the full derivation can be presented on a separate sheet (not to be published).
9. Footnotes should be kept to a minimum and be numbered consecutively throughout the text with superscript Arabic numerals.
10. The references should include only the most relevant papers. In the text, references to publications should appear as follows: "Khan (1978) reported that..." Or "This problem has been a subject in literature before [e.g., Khan (1978) p. 102]." The author should make sure that there is a strict "one-to-one correspondence" between the names (years) in the text and those on the list. At the end of the manuscript (after any appendices) the complete references should be listed as: for monographs and books. Ahmad, Jaleel, 1978, Import substitution, trade and development, Amsterdam: North-Holland, For contributions to collective works Newbery, Daved M.G., 1975,. The use of rental contract in peasant agriculture, in: Reynolds, ed., Agriculture in development theory, New Haven: Yale University Press p. 3-40.
11. All unessential tables should be eliminated from the manuscript. Tables should be numbered consecutively in the text in Arabic numerals and typed on separate sheets. Any manuscript which does not conform to the instructions may be returned for necessary revision before publication.
12. The submitted article file should not be more than 6000 words in a research paper including references and annexures.
13. Papers and references should conform to the APA format.
14. No single source of reference should exceed 5% of citation within the paper.
15. Plagiarism as measured by the Similarity Index of Turnitin is acceptable under 19%.

-
16. A single paper should not be submitted multiple times as a separate (unique) submission.

Privacy Statement

Pakistan Business Review considers all manuscripts on the strict condition that

- The manuscript is author's own original work, and does not duplicate any other previously published work, including author's own previously published work.
- The manuscript has been submitted only to Pakistan Business Review; it is not under consideration or peer review or accepted for publication or in press or published elsewhere.
- The manuscript contains nothing that is abusive, defamatory, libellous, obscene, fraudulent, or illegal.

Please note that Pakistan Business Review uses a plagiarism detection software to screen manuscripts for unoriginal material. By submitting your manuscript to Pakistan Business Review, you are agreeing to any necessary originality checks your manuscript may have to undergo during the peer-review and production processes.

Any author who fails to adhere to the above conditions will be barred from further publishing in Pakistan Business Review.