

Papers

- Adeel Nasir, Muhammad Aamir, and Muhammad Usman**
Does Stock Market Explain the CSR Announcements to Investors?
Or is it Just an Absurd Relation? 01-12
- Muhammad Shahid Tufail, Iram Bashir, and Muhammad Ishtiaq**
The Dues of Ambivalence Hamper the Psychological Well-Being When Mediated By
Creativity of Employees 13-24
- Zahida Parveen, Rab Nawaz Lodhi, and Sajeela Rabbani**
Impact of Transformational Leadership on Employee Creativity: Moderated Mediation
Model of Organizational Learning Culture and Support 25-43
- Noreen Hassan Syed, Nizamuddin Channa, and Imamdin Khoso**
Impact of Change Related Communication on Organizational Commitment with the
Mediating Effect of Job Satisfaction; Case of Banks' Merger in Pakistan 44-66
- Mubashar Tanveer, Naveed Mushtaq, and Muhammad Zahid Awan**
Effect of Earnings Management linked Advertising Expenditures,
Board Attributes and Ownership Type on Performance of Food
Sector Firms of Pakistan 67-81
- Khurram Yazdani Qureshi, Fuwad Bashir Awan, and Shazia Perveen**
Impact of Project Management Leadership and Knowledge
Management on Job Engagement; with Mediating Role of Self Efficacy 82-98
- Tayyab Sultan, Muhammad Junaid Shahid Hasni, and Ali Raza**
Brand Equity and Its Impact on Customer Purchase Intention:
Empirical Evidence of the Telecommunication Sector of Sargodha 99-110
- Faisal Abbas, Omar Masood, and Syed Moudud-Ul-Huq**
Improving the Robustness of Capital and Risk Relationship
Estimation: A Fundamental Analysis 111-132
- Mudassar Rashid, Shahid Akbar, Usman Shakoor, and Sher Akbar**
Identifying Optimal ARIMA Type Forecasting Model for COVID-19
Datasets of Pakistan 133-143
- Syed Muhammad Irfan and Faisal Qadeer**
Employers Investments in Job Crafting for Sustainable Employability in Pandemic
Situation Due to COVID-19: A Lens of Job Demands-Resources Theory 144-164



Objectives and Scope

The Journal of Business & Economics is an internationally refereed journal with an aim to encourage and publish original theoretical as well as practical, issue-oriented, research papers on broadly defined areas of business management and economics. To ensure high- quality publications, all papers are subject to rigorous screening process, plagiarism check and peer- review by national and international reviewers with strong academic and research background in their areas of expertise.

JBE aims to reaffirm top-notch research and development in academic circles and business markets. The published articles are intended for providing enriched resource to local, regional as well as international readership. The journal delivers an opportunity to develop a strong basis for conceptual and professional growth by sharing latest research findings and best practices. The primary ambition of JBE is to bridge academia and practitioners throughout local and international business environment. In a larger canvas, JBE aspires to build a platform for informed-debate on current issues of third- world: economic competitiveness, efficiency, and sustainable development.

Publication and Submission of Articles

The bi-annual Journal of Business & Economics (JBE), first printed in 2009 by the Faculty of Administrative Sciences, Air University, Islamabad is regularly published in volumes with two issues i.e. January-June and July-December. It is indexed with Journal of Economic Literature (JEL), American Economic Association Publications, Proquest and Ebscohost. For all inquiries regarding call for papers, submission of research articles and correspondence related to subscription and tariff, kindly contact on the address below:

Address

Journal of Business & Economics
Air University School of Management
Faculty of Administrative Sciences
Air University, PAF Complex, E-9, Islamabad, Pakistan.

Phone: UAN +92-51-111 247 864 Ext: 751

Fax: +92-51- 9260158

E mail: jbe@mail.au.edu.pk

Web: <http://www.au.edu.pk/jbe>

Copyright © 2009, Air University, Islamabad, Pakistan. All rights reserved.

Published by the Faculty of Administrative Sciences.

First printing: Jan-Jun 2009, Islamabad, Pakistan.

Note: This Journal or any part thereof may not be reproduced in any form without having written permission of the Publisher. All data, views, opinions, etc., that are published in articles of this journal bear sole responsibility of the respective authors for which the Faculty of Administrative Sciences, Air University, Pakistan including its editors and publishing team assume no responsibility.

Journal of Business & Economics

Volume 12

Number 2

July - December 2020

Papers

- Adeel Nasir, Muhammad Aamir, and Muhammad Usman**
Does Stock Market Explain the CSR Announcements to Investors?
Or is it Just an Absurd Relation? 01-12
- Muhammad Shahid Tufail, Iram Bashir, and Muhammad Ishtiaq**
The Dues of Ambivalence Hamper the Psychological Well-Being When Mediated By
Creativity of Employees 13-24
- Zahida Parveen, Rab Nawaz Lodhi, and Sajeela Rabbani**
Impact of Transformational Leadership on Employee Creativity: Moderated Mediation
Model of Organizational Learning Culture and Support 25-43
- Noreen Hassan Syed, Nizamuddin Channa, and Imamdin Khoso**
Impact of Change Related Communication on Organizational Commitment with the
Mediating Effect of Job Satisfaction; Case of Banks' Merger in Pakistan 44-66
- Mubashar Tanveer, Naveed Mushtaq, and Muhammad Zahid Awan**
Effect of Earnings Management linked Advertising Expenditures,
Board Attributes and Ownership Type on Performance of Food
Sector Firms of Pakistan 67-81
- Khurram Yazdani Qureshi, Fuwad Bashir Awan, and Shazia Perveen**
Impact of Project Management Leadership and Knowledge
Management on Job Engagement; with Mediating Role of Self Efficacy 82-98
- Tayyab Sultan, Muhammad Junaid Shahid Hasni, and Ali Raza**
Brand Equity and Its Impact on Customer Purchase Intention:
Empirical Evidence of the Telecommunication Sector of Sargodha 99-110
- Faisal Abbas, Omar Masood, and Syed Moudud-Ul-Huq**
Improving the Robustness of Capital and Risk Relationship
Estimation: A Fundamental Analysis 111-132
- Mudassar Rashid, Shahid Akbar, Usman Shakoor, and Sher Akbar**
Identifying Optimal ARIMA Type Forecasting Model for COVID-19
Datasets of Pakistan 133-143
- Syed Muhammad Irfan and Faisal Qadeer**
Employers Investments in Job Crafting for Sustainable Employability in Pandemic
Situation Due to COVID-19: A Lens of Job Demands-Resources Theory 144-164



Faculty of Administrative Sciences
Air University, Islamabad - Pakistan.

Journal of Business & Economics

EDITORIAL BOARD

EDITOR

Dr. Saman Attiq *Air University, Islamabad, Pakistan*

MANAGING EDITOR

Dr. Saman Attiq *Air University, Islamabad, Pakistan*

ASSOCIATE MANAGING EDITOR

Dr. Muzammel Shah *Air University, Islamabad, Pakistan*

ASSOCIATE EDITOR

Ms. Aneela Yaqoob *Air University, Islamabad, Pakistan*

ADVISORY BOARD

INTERNATIONAL MEMBERS

1. Chulho Jung *Ohio University, USA*
2. Fongwa Ernest Anye *Brandenburg University of Technology (BTU), Cottbus, Germany*
3. Ahmed Masood Khalid *Bond University, Australia*
4. M. Mafizur Rahman *University of Southern Queensland, Australia*
5. Sarath W.S.B Dasanayaka *University of Moratuwa, Sri Lanka*
6. Solarin Sakiru Adebola *Multimedia University Melaka, Malaysia*
7. Haider Ali Shah *Hertfordshire University, U.K*
8. Ali Malik *Hertfordshire University, U.K*
9. Michael James Price *Newcastle University, UK*
10. Gan Pei-Tha *University of Education, Malaysia*
11. Abdusalam F. Yahia *University of Misurata, Khomis, Libya*
12. Nazim Ali Zaman *Umm Al-Qura University, Saudi Arabia*

NATIONAL MEMBERS

1. Assad Zaman *Vice Chancellor, Pakistan Institute of Development Economics, Islamabad, Pakistan*
2. Farzand Ali Jan *Vice Chancellor, Iqra National University, Peshawar*
3. Ijaz Shafi Gillani *Chairman, Gallup Pakistan*
4. Eatzaz Ahmad *Director, Institute of Islamic Economics, International Islamic University, Islamabad, Pakistan*
5. Abdul Raheman *Dean, Faculty of Management Sciences, University of Gujrat, Gujrat, Pakistan*
6. Syed Nawab Haider Naqvi *Distinguished National Professor, HEC, Pakistan*
7. Zafar Mahmood *National University of Science & Technology, Pakistan*
8. Ather Maqsood Ahmed *National University of Science & Technology, Pakistan*
9. Rehana Siddiqui *Pakistan Institute of Development Economics, Islamabad, Pakistan*
10. Fazal Hussain *Pakistan Institute of Development Economics, Islamabad, Pakistan*
11. Usman Mustafa *Pakistan Institute of Development Economics, Islamabad, Pakistan*

RESEARCH ARTICLE

Does Stock Market Explain the CSR Announcements to Investors? Or is it Just an Absurd Relation?

Adeel Nasir^{*1}, Muhammad Aamir², and Muhammad Usman³

¹ Lahore College for Women University, Jail Road, Lahore

^{2,3} Hailey College of Commerce, University of the Punjab, Lahore

Received: April 28, 2019; Accepted: November 2, 2020.

Abstract: The purpose of this study is to investigate the impact of Corporate Social Responsibility (CSR) announcements on shareholder and investors' perceptions in Pakistan. 46 press releases regarding CSR announcements are taken as a sample from the banking sector of Pakistan. Event study methodology with a maximum of 21 days window and 272 daily observations. Different event windows are taken to check the model for both the short and long term impact of CSR. This study is primary in nature as CSR growth and disclosure procedures are not mature yet in Pakistan. This study may post some points for the policymakers, companies, and officials to look after and promote corporate social responsibility in the corporate sector and give awareness to all the stakeholders about the importance and significance of Corporate Social Responsibility. The results indicated that investors are affected by CSR announcements but this effect persists for short time. There are insignificant results when we increase the period of analysis. There is less awareness of CSR activities among firms, investors, and shareholders because of the less regulatory support and promotion for these activities in Pakistan.

Keywords: Corporate Social Responsibility, CSR, Share Prices, Stock Market, Event Study Methodology

JEL Classification Codes: F65, G30, O16, M10

1 Introduction

Corporate social responsibility (CSR) refers to the volunteer engagement of the firm in those activities, which can be beneficial for its stakeholders i.e. shareholders, employees,

*adeel.nasir@lcwu.edu.pk

creditors, debtors, customers, and society, etc. This idea of CSR diverts the attention of researchers from shareholders' benefits to managerial benefits because CSR activities are arranged and funded by the firms' managers, whereas managers' discretion of funding CSR activities out of the firm's profits can raise some principal-agent conflicts. On the other side, these activities can be viewed as the struggle to achieve the goal of maximization of shareholders' wealth, because initiating the CSR activities can enhance the firm's value by increasing its stock price. Therefore, researchers have been given a lot of attention to this emerging issue of CSR. Several studies have suggested different relationships between CSR and a firm's performance, while different empirical shreds of evidence have suggested inconsistent results.

Some studies argued that firms can obtain better resources (Cochran & Wood, 1984; Waddock & Graves, 1997), employees with improved qualities (Greening & Turban, 2000; Turban & Greening, 1997), the abilities to market their products and services in an efficient manner (C. Fombrun, 1996; Moskowitz, 1972) and the competencies to create the unforeseen opportunities (C. J. Fombrun et al., 2000) by improving their social performance. Neo-classical economists suggested that participating in CSR activities can increase the firm's cost and negatively impacts its competitive advantage (Aupperle et al., 1985; Friedman, 2007; Jensen, 2002; McWilliams & Siegel, 1997). Brammer & Millington (2008) argued that the utilization of a firm's resources for funding the CSR activities can raise the managerial benefits instead of shareholders' wealth.

CSR has become internationally famous and is increasingly being researched by different academicians. But in the case of Pakistan, it is at its initial stages and gaining maturity as companies in Pakistan have started to focus on their social performance along with firm performance. Credit rating agencies are frequently paying attention to surveying the Pakistani companies concerning their stakeholder management. But the concept of social performance is still not famous in its true sense in the Pakistani scenario. Only a few firms are considering the CSR strategy and most of them are multinationals that follow their own CSR limits and standards. A big question here is why Pakistani firms are not considering social responsibility as an important corporate responsibility? The answer is clear that they might be unfamiliar with the benefits of initiating the CSR activities or they might consider that even though they do not initiate such activities, they will not be facing any kind of risk regarding their survival in the future. Waheed (2005) used the Pakistani firms' data to develop the CSR compliance report for RBI (Responsible Business Initiative). The continuous development of CSR is getting more popularity among researchers and they have started to focus their empirical work on determining the benefits of CSR initiatives to the financial performance of the firms and on exploring the CSR role in the performance of the debt and equity market. Spending on ethical issues is supposed to lead the market indices to perform well which will ultimately enhance the managers' reputation by increasing the shareholders' wealth.

The non-financial sector has frequently been researched internationally and in the Pakistani scenario, there are also some studies focused on CSR by considering this sector. Research in CSR is yet to be made in banking sector of Pakistan. Pakistani banks are increasingly responding to the ethical issues concerning the stakeholders. CSR activities are becoming famous in the Pakistani banking sector due to the business nature, the banking industry is service-oriented and customers are the key factors of success for these types of industries. While in Pakistan, approximately all the banks are offering the same type of services at almost the same costs, therefore, cut-throat competition among banks can be wit-

nessed. The economic condition of Pakistan reflects on the unhealthy lifestyle of Pakistani people. Pakistani banks have better option to be engaged in corporate social responsibility activities to provide the people with an improved lifestyle and this initiative will not only increase the market share but also positively impact the stock returns. This study also focuses on the banking sector of Pakistan as it would be a contribution to the existing body of knowledge concerning corporate social responsibility issues. The main objective of this study is to explore the impact of CSR activities on stock returns of Pakistani banks.

The study will help both the banking sector and investors of Pakistan. First, it elaborates that CSR has the potential to increase market share and there is an increase in market reputation. From an investor's point of view, this study contributes by indicating how the market is going to react to the news of CSR activities. An investor can manage to gain above-average returns from the news.

The second part of the remaining of this study consists of a review of related literature, the third part covers the research methodology, the fourth part empirically reports results and discussions and the fifth part provides a holistic conclusion of the study.

2 Literature Review

Various research studies are available that examine the relationship between corporate social responsibility and a firm's performance but the empirical results of them suggested mixed relationships. There is a brief history of studies related to the relationship between CSR activities of the firms and firm performance. CSR has contributed to the fundamentals of the firms just like [Bragdon & Marlin \(1972\)](#) who observed the positive impact of CSR on firm earning per share (EPS) growth, return of equity, and return of capital. [Bowman & Haire \(1975\)](#) and [Spicer \(1978\)](#) also observe the positive impact of CSR activities on firm performance. [Pérez et al. \(2020\)](#) found that there is an effect of both negative and positive CSR news on the stock market. They suggested that negative CSR news has a strong negative impact on banking, energy, goods, and services industries while positive CSR news derived basic, finance, and banking industries positively. [Odeh et al. \(2020\)](#) found no significant relationship between CSR and stock prices of 102 service sector firms listed on the Amman Stock Exchange. They also suggested that there is no significant direction for the stated relationship. [Escamilla-Solano et al. \(2019\)](#) used the PLS-SEM model to analyze the impact of CSR on firm profitability. They reported that disclosure of CSR measures significantly and positively improved the stock profitability in economic and social dimensions.

[Hao et al. \(2018\)](#) reported the significant negative relationship between CSR and stock returns of the Chinese stock market. They also indicated the strong moderating role of internal control procedures between CSR and abnormal returns of stocks. CSR activities reduced the stock price crises with strong internal control. [Katsikides et al. \(2016\)](#) examined the relationship between stock market performances and stock returns. They used event study methodology to analyze five events, three CSR events from the banking industry, and two from the oil industry. They reported significant negative impact following the event. [Flammer \(2013\)](#) conducted the event study for the environmental news of US publicly traded companies. He found that companies with high level of CSR activities on environments are less prone to positive or negative market reaction to eco-friendly or eco-harmful events. For other companies, he indicated that eco-harmful events increase the negative market reaction.

Wang et al. (2011) analyzed the investment behavior concerning corporate social responsibility. They indicated that there is no change in the behavior of investors before the event but after the CSR event, there is a significant change in firm performance and investors' behavior. Lev et. al. (2008) in their study indicated the firm enhances its firm sales with the reputation created by CSR activities. Some of the researchers also observe the negative relationship between firm performance and CSR announcements. Aupperle et al. (1985) observe the negative impact of CSR activities on firm return on assets. Fogler & Nutt (1975); C. Fombrun & Shanley (1990); McGuire et al. (1988); McWilliams & Siegel (2000), and Orlitzky (2013) elaborated mixed and neutral results regarding the relationship of CSR activities and firms performance which indicate that the relationship between CSR activities and firms performance is a fallacy or absurd. CSR represents a different dimension in a firm and carries significance, suggesting it has no role in firm growth and performance.

There is very limited literature available on stock market performance and firm CSR activities. Alexander & Buchholz (1978) used reputation rating as a proxy to CSR while observing that CSR activities of a firm provide better market returns. Cochran & Wood (1984) used the Moskowitz reputation index as the proxy to measure corporate social responsibility and observe positive abnormal returns in the market with firm CSR activities. Blackburn et al. (1994) observe the positive impact of CSR activities on return on assets of the firm and abnormal returns of the firm. Akpinar et al. (2008) and McWilliams et al. (1999) also indicated the positive relationship between CSR activities and firm market returns. This positive relationship of firms' CSR with stock market performance indicates that CSR matters when it comes to the stock market performance of the firm. Investors considered CSR announcements important while investing in the stock market.

This paper aims to investigate the impact of CSR announcements on stock market returns. Stock market returns are taken as the proxy for market performance, which entails the perception of investors and stakeholder of the company. The hypothesis which needs to be analyzed.

H_1 : There is a significant impact of CSR announcements on the market performance of banks.

3 Research Methodology

The objective of this paper is to analyze how firms react to the announcements regarding CSR in Pakistan banking sector. Press releases regarding the social activities in the field of education, health, sports, and economic well being are taken as a proxy for CSR announcement. Firm's performance is measured by cumulative abnormal returns (CAR) which are calculated by using the market model (Wong et al., 2010). 10 banks are used in the sample with 46 press releases regarding CSR activities. The study covers all the press releases, which are officially uploaded or mentioned on the bank's website or financial report with proper date. All data with incomplete information is dropped from the sample. For the calculation of abnormal return, the market model is used with daily stock returns for CSR announcements for the period 2010-2013. Stock return data has been collected from Pakistan Stock Exchange (PSX).

The first step is to conduct the linear relationship between the return of securities and the return of the market index.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon \quad (1)$$

Where,

Rit: Daily returns of ith security

Rmt: Market index (KSE 100) daily rate of return

α_i : Expected value of $(R_i - \beta_i R_m)$

β_i : Slope coefficient of market return

ε : Error term

The daily rate of returns of securities and market index is calculated by the following equation.

$$R_{it}/R_{mt} = (P_t - P_{t-1})/P_{t-1} \quad (2)$$

Where,

P_t = Closing price of the security on day t

P_{t-1} = Closing price of the security on day t-1

The main concern of our study is to capture the abnormal return on security and to analyze the expected return on security should be known.

$$ER_{it} = \alpha_i + \beta_i R_{mt} \quad (3)$$

Where $E[R]_{it}$ is the expected return for the period of observation. The methodology resembles [Huang & Walkling \(1987\)](#) with slight change in the observation period because the dynamics of Pakistani companies are different from other countries where the volatility of the stock market is concerned. Maximum 293 daily prices are used as the period around the event day, which is denoted as t. The period starts at t-272 and ends at t+20. The period of t-272 to t-20 is treated as the estimation period and through t-20 (pre-announcement) to t+20 (post-announcement) is taken as the event window for analysis.

The deviation from the expected return is the abnormal return on a security, which helps us to understand the change that a particular event can bring on to the firm value. Abnormal return is calculated from the following equation.

$$AR_{it} = R_{it} - E[R]_{it} \quad (4)$$

Where,

ARit : Abnormal returns

Rit : Daily return on ith security

$E[R]_{it}$: Expected return from ith security

Then from abnormal returns, we calculated the average abnormal return by aggregating abnormal returns of the entire selected sample on day t and then divide it with the total number of firms with returns on that day.

$$AAR_t = \Sigma AR_{jt}/N_t \quad (5)$$

From equation number 5, cumulative abnormal returns (CAAR) are calculated for different event windows. CAAR used to estimate whether there is a significant impact on the stock market with the announcement of CSR by banks in Pakistan.

4 Results and Discussions

The study period of three years (2010-2013) is used in which CSR announcements in the shape of press releases at a different time in the year. A total of 46 announcements are collected from the website of the bank because there are no rules defined by the securities and exchange commission of Pakistan (SECP) to promote and disclose the CSR activities.

Table 1 shows the segregation of the CSR announcement of banks in Pakistan. There is a total of 46 announcements, indicating all press releases from 2010 to 2013 with actual dates. These press releases possess the information regarding all the social welfare activities i.e. health, security, education, sports, etc., these activities are not for profit, and expenses for these activities are taken out of the retained earnings of the business for the social well being and long term goodwill for the business. As discussed above, there is a very limited trend in Pakistan regarding CSR activities. SECP has just started taking notice of these activities.

The table shows that the National Bank of Pakistan (NBP) has most of the press releases regarding CSR activities. It is healthy for a bank considering its stakeholders are always aware of the fact that banks are doing some work for social well being of society. NBP possesses the ownership of government, their objectives are not fully maintained to earn a profit. There are certain requirements of government bodies, which require these state-owned enterprises (SOEs) to give something back to society in the form of social work and invest in socially compromised fields for restructuring and regain. The bank contributing to the CSR on the second number is JS bank with 8 announcements throughout the period, these banks want to maintain their long term position in the market by giving something back to the people in the shape of education, health, or security.

Table 1: Number of CSR Announcement by Banks

CSR Announcements	2010-2013
Bank Alfalah	4
National Bank of Pakistan	20
Bank Islami	1
Faisal Bank	1
JS Bank	8
MCB Bank	4
NIB bank	1
Stand. Chart. Bank	1
Meezan Bank	5
Silk Bank	1
Total	46

Table 2 tests the main hypothesis of this study, first column indicates the overall result of all banks with 46 announcements and the results are quite clear, indicating that there is a strong significant but negative impact of CSR announcement on investor perception of the company, in other words, banks' investors and stakeholders do care about the CSR activities. Further, understandably, investors consider CSR announcements for a rather shorter period. As indicated by the t-test, CAAR with the smaller windows i.e. CAAR (-2, 2), (-1, 1), (0,1), and (0,2) has negative significant values, which indicates that CSR announcements

have 2 to 3 days impact on investors perception and the negative sign shows that investor is earning below their expectations. There may be a possibility of agency costs because there might be a conflict between managers and shareholders. After all, managers have to increase the wealth of the shareholders. Taking funds from retaining earnings for CSR activities, which can also be given as dividends to shareholders but not giving may create a conflict between major shareholders. The company is using retained earnings for CSR, which apparently does not increase firm value with an investment in positive NPV projects and also not given as dividends to shareholders have a negative impact on the market value of the firm. Although this negative impact does not last for the long term because of the nature of the activity performed by the firm. CSR announcements have a significant impact on stock returns. The impact started to vanish as the event window started to expand.

From column two to column eleven the results are presents for each bank separately. Results are almost similar to overall results, for larger event windows all banks show insignificant results as stated by the t-test this indicates that banks' investors are not affected by CSR announcements for more than two days. But for shorter event windows most of the securities have significant results. National banks and bank Alfalfa also post insignificant results for a shorter period as well. These large size banks are not derived by the investor perceptions but they are fundamentally strong. The last row provides the CAAR (0,1), which indicates the event day and after the event day. The last row shows a significant sign for all banks. Only bank Islami and Silk bank gained more than expected returns, all others have shown a negative sign, which means that these firms earn lower than expected. Negative returns of stocks with CSR announcements are in line with the findings of [Alexander & Buchholz \(1978\)](#); [Aupperle et al. \(1985\)](#); [Blackburn et al. \(1994\)](#); [Katsikides et al. \(2016\)](#) and [Pérez et al. \(2020\)](#). In long run, such as CAAR (-20, 20) and CAAR (0, 20), there is insignificant market reactions which are in line with [Fogler & Nutt \(1975\)](#); [C. Fombrun & Shanley \(1990\)](#); [McGuire et al. \(1988\)](#); [McWilliams & Siegel \(2000\)](#) and [Orlitzky \(2013\)](#).

Table 2: Cumulative Average Abnormal Returns (CAAR)

	Overall	BAFL	NBP	BIPL	FABL	JSBL	MCB	NIB	SCBPL	MEBL	Silk
CAAR (-2,2)	-0.013	-0.001	-0.002	0.047	-0.013	-0.026	-0.013	0.002	-0.038	-0.036	-0.126
S.E	0.004	0.01	0.003	0.074	0.015	0.012	0.003	0.029	0.012	0.007	0.045
t-test	-3.468	-0.059	-0.63	0.629	-0.851	-2.279	-4.964	0.053	-3.227	-5.08	-2.807
CAAR (-20,+20)	-0.001	-0.005	-0.004	0.085	0.006	0.01	-0.009	-0.024	-0.031	-0.012	0.033
S.E	0.032	0.077	0.024	0.358	0.089	0.102	0.044	0.206	0.177	0.052	0.306
t-test	-0.03	-0.065	-0.169	0.237	0.068	0.103	-0.202	-0.114	-0.176	-0.226	0.108
CAAR (-5,5)	-0.011	-0.02	0	-0.009	-0.041	-0.027	-0.011	0.008	-0.05	-0.021	0.025
S.E	0.008	0.018	0.005	0.107	0.022	0.024	0.01	0.073	0.039	0.021	0.1
t-test	-1.408	-1.066	-0.015	-0.086	-1.842	-1.161	-1.083	0.117	-1.283	-0.99	0.247
CAAR(-1,1)	-0.005	0.001	-0.003	0.057	0.025	-0.015	-0.01	0.035	-0.029	-0.019	-0.017
S.E	0.002	0.007	0.002	0.044	0.009	0.008	0.002	0.022	0.007	0.004	0.016
t-test	-2.772	0.21	-1.594	1.295	2.882	-1.943	-5.339	1.635	-4.012	-5.193	-1.033
CAAR (0,20)	0.009	-0.033	0.007	0.164	-0.059	0.044	-0.052	0.025	0.004	-0.028	0.247
S.E	0.015	0.036	0.012	0.212	0.05	0.04	0.028	0.121	0.099	0.019	0.158
t-test	0.577	-0.894	0.561	0.774	-1.19	1.109	-1.849	0.21	0.042	-1.438	1.571
CAAR (0,5)	-0.008	-0.011	-0.005	-0.012	-0.003	-0.026	-0.012	0.046	-0.001	-0.017	0.103
S.E	0.005	0.01	0.003	0.066	0.014	0.016	0.008	0.054	0.021	0.007	0.052
t-test	0.143	0.073	0.145	0.123	0.06	0.03	0.278	0.283	0.187	0.151	0.077
CAAR(0,2)	-0.01	-0.003	-0.008	0.018	0	-0.019	-0.013	0.037	-0.015	-0.019	-0.051
S.E	0.003	0.006	0.002	0.053	0.01	0.009	0.002	0.021	0.008	0.004	0.024
t-test	-3.453	-0.482	-3.682	0.332	0.034	-2.177	-5.608	1.744	-1.904	-5.188	-2.145
CAAR (0, 1)	-0.002	-0.008	-0.005	0.09	0.02	-0.005	-0.009	0.066	-0.021	-0.013	0.022
S.E	0.001	0.002	0.001	0.036	0.006	0.005	0.002	0.015	0.006	0.003	0.005
t-test	-1.918	-3.504	-3.603	2.496	3.059	-0.896	-5.481	4.47	-3.449	-5.142	4.228

5 Conclusion

As a result of the above discussion, it is clear that there is no long-term impact of CSR announcements and stock returns and that is why there is less importance given to corporate social responsibility in Pakistani banks. As the literature indicates that for a longer and shorter period of time investors are of two types one are risk-takers, who do not come to invest for the longer period and the other types are risk-averse people, who prefer fixed dividends. As for this paper, the hypothesis is accepted that there is a significant relationship between banks' market returns and banks' CSR activities. The impact of CSR activities is not long-lasting. Pakistani firms are different from other emerging economies. Most of the studies in other countries see the fundamental effects posted by corporate social responsibility as it has strong significance and regulatory importance. In Pakistan, the scenario is opposite it for the past decade or so. Now things are changing at the regulatory level and also there is awareness in the public, private, and family-owned business about CSR and its significance. In the contemporary scenario, the results indicate that for a shorter event window CSR has its significance for investors in the market but for the longer period CSR and stock market relationship is absurd.

5.1 Limitations of Research

Only firms with press releases with proper dates are selected considering need of the study. Rest of the firms with the incomplete CSR announcements are dropped from the study. Banking sector is taken for this research study. Generalization of results from this study onto other sectors would not be a rational approach. Moreover, non supporting regulatory structure and generalization of results onto other economies does not seem sensible either.

References

- Akpinar, A., Jiang, Y., Gómez-Mejía, L. R., Berrone, P., & Walls, J. L. (2008). Strategic use of csr as a signal for good management. *Available at SSRN 1134505*.
- Alexander, G. J., & Buchholz, R. A. (1978). Corporate social responsibility and stock market performance. *Academy of Management journal*, 21(3), 479–486.
- Aupperle, K. E., Carroll, A. B., & Hatfield, J. D. (1985). An empirical examination of the relationship between corporate social responsibility and profitability. *Academy of management Journal*, 28(2), 446–463.
- Blackburn, V. L., Doran, M., & Shrader, C. B. (1994). Investigating the dimensions of social responsibility and the consequences for corporate financial performance. *Journal of Managerial Issues*, 195–212.
- Bowman, E. H., & Haire, M. (1975). A strategic posture toward corporate social responsibility. *California management review*, 18(2), 49–58.
- Bragdon, J. H., & Marlin, J. (1972). Is pollution profitable. *Risk management*, 19(4), 9–18.
- Brammer, S., & Millington, A. (2008). Does it pay to be different? an analysis of the relationship between corporate social and financial performance. *Strategic management journal*, 29(12), 1325–1343.
- Cochran, P. L., & Wood, R. A. (1984). Corporate social responsibility and financial performance. *Academy of management Journal*, 27(1), 42–56.
- Escamilla-Solano, S., Fernández-Portillo, A., Paule-Vianez, J., & Plaza-Casado, P. (2019). Effect of the disclosure of corporate social responsibility on business profitability. a dimensional analysis in the spanish stock market. *Sustainability*, 11(23), 6732.
- Flammer, C. (2013). Corporate social responsibility and shareholder reaction: The environmental awareness of investors. *Academy of Management Journal*, 56(3), 758–781.
- Fogler, H. R., & Nutt, F. (1975). A note on social responsibility and stock valuation. *Academy of Management Journal*, 18(1), 155–160.
- Fombrun, C. (1996). Reputation: Realizing value from the corporate image. *Harvard Business School Press, Cambridge, MA*.
- Fombrun, C., & Shanley, M. (1990). What's in a name? reputation building and corporate strategy. *Academy of management Journal*, 33(2), 233–258.

- Fombrun, C. J., Gardberg, N. A., & Barnett, M. L. (2000). Opportunity platforms and safety nets: Corporate citizenship and reputational risk. *Business and society review*, 105(1), 85–106.
- Friedman, M. (2007). The social responsibility of business is to increase its profits. In *Corporate ethics and corporate governance* (pp. 173–178). Springer.
- Greening, D. W., & Turban, D. B. (2000). Corporate social performance as a competitive advantage in attracting a quality workforce. *Business & society*, 39(3), 254–280.
- Hao, D. Y., Qi, G. Y., & Wang, J. (2018). Corporate social responsibility, internal controls, and stock price crash risk: The chinese stock market. *Sustainability*, 10(5), 2–22.
- Huang, Y.-S., & Walkling, R. A. (1987). Target abnormal returns associated with acquisition announcements: Payment, acquisition form, and managerial resistance. *Journal of financial economics*, 19(2), 329–349.
- Jensen, M. C. (2002). Value maximization, stakeholder theory, and the corporate objective function. *Business ethics quarterly*, 235–256.
- Katsikides, S., Markoulis, S., & Papaminas, M. (2016). Corporate social responsibility and stock market performance: An event study approach. *International Journal of Engineering and Advanced Technology*, 6(2), 1–8.
- McGuire, J. B., Sundgren, A., & Schneeweis, T. (1988). Corporate social responsibility and firm financial performance. *Academy of management Journal*, 31(4), 854–872.
- McWilliams, A., & Siegel, D. (1997). The role of money managers in assessing corporate social responsibility research. *The Journal of Investing*, 6(4), 98–107.
- McWilliams, A., & Siegel, D. (2000). Corporate social responsibility and financial performance: correlation or misspecification? *Strategic management journal*, 21(5), 603–609.
- McWilliams, A., Siegel, D., & Teoh, S. H. (1999). Issues in the use of the event study methodology: A critical analysis of corporate social responsibility studies. *Organizational Research Methods*, 2(4), 340–365.
- Moskowitz, M. (1972). Choosing socially responsible stocks. *Business and Society Review*, 1(1), 71–75.
- Odeh, M. H., Alshannag, F. M., Eneizan, B., Alkhaldeh, A. M., & Makhamreh, H. Z. (2020). Analysis of the relationship between corporate social responsibility (csr) spending and market stock price among jordanian service firms. *Cogent Business & Management*, 7(1), 1746732.
- Orlitzky, M. (2013). Corporate social responsibility, noise, and stock market volatility. *Academy of Management Perspectives*, 27(3), 238–254.
- Pérez, A., López-Gutiérrez, C., et al. (2020). Market reactions to csr news in different industries. *Corporate Communications: An International Journal*, 25(2), 243–261.
- Spicer, B. H. (1978). Investors, corporate social performance and information disclosure: An empirical study. *Accounting review*, 53(1), 94–111.

- Turban, D. B., & Greening, D. W. (1997). Corporate social performance and organizational attractiveness to prospective employees. *Academy of management journal*, 40(3), 658–672.
- Waddock, S. A., & Graves, S. B. (1997). The corporate social performance–financial performance link. *Strategic management journal*, 18(4), 303–319.
- Waheed, A. (2005). Corporate social responsibility in pakistan and a strategy for implementation. *Securities and Exchange Commission of Pakistan*.
- Wang, M., Qiu, C., & Kong, D. (2011). Corporate social responsibility, investor behaviors, and stock market returns: Evidence from a natural experiment in china. *Journal of Business Ethics*, 101(1), 127–141.
- Wong, A., Long, F., & Elankumaran, S. (2010). Business students' perception of corporate social responsibility: the united states, china, and india. *Corporate Social Responsibility and Environmental Management*, 17(5), 299–310.

Appendix-A

Table A: Average Abnormal Returns (AAR)

	BAHL	NBP	BIPL	FABL	JSBL	MCB	NIB	SCBPL	MEBL	Silk
-20	0.004	0.003	-0.011	-0.007	-0.015	0.003	0.005	0.001	-0.001	0.008
-19	0.001	0.003	0.012	-0.01	-0.005	0.004	-0.011	-0.005	0.018	0.076
-18	-0.003	-0.001	-0.049	-0.002	0.001	-0.002	-0.006	-0.003	0.002	-0.036
-17	0.003	0.006	0.032	0.002	0.002	0.005	0.031	-0.002	-0.007	0.089
-16	-0.005	-0.004	0.085	0.006	0.01	-0.009	-0.024	-0.031	-0.012	0.033
-15	0.003	0.001	-0.059	-0.017	0.039	0.012	0	-0.035	0.012	0.011
-14	0.002	-0.003	0.028	-0.007	0.048	0.002	0.01	0.002	-0.006	0.066
-13	-0.005	0.005	0.025	0	-0.003	-0.001	-0.01	-0.002	-0.004	-0.007
-12	0.011	0	-0.017	-0.012	-0.018	0.002	0.05	0.033	-0.005	-0.049
-11	-0.001	-0.007	-0.025	-0.02	-0.019	-0.004	-0.03	-0.036	0.001	0.034
-10	0.001	0.001	0.034	-0.036	-0.012	-0.004	-0.04	0.011	-0.01	0
-9	-0.003	-0.001	0.004	0.001	0.03	0	-0.007	0.013	-0.002	0.011
-8	-0.001	0.006	-0.052	-0.004	-0.025	-0.007	0.024	-0.065	0.004	-0.01
-7	-0.005	0	0.026	-0.02	-0.005	0.001	-0.014	0.021	-0.002	0.045
-6	0.003	0.005	0.024	0.014	-0.004	0.007	0.031	0.007	0.003	0
-5	-0.006	0.002	0.03	-0.01	-0.007	-0.001	0.006	-0.044	0.007	-0.009
-4	-0.006	-0.001	-0.032	-0.011	0	0.004	-0.026	0.012	-0.016	-0.049
-3	0.001	-0.001	-0.024	-0.003	0.013	-0.002	0.019	0.004	0.023	0.054
-2	-0.007	0.004	0.061	-0.018	0.003	0	-0.005	-0.015	-0.012	-0.036
-1	0.01	0.002	-0.032	0.005	-0.011	0	-0.031	-0.008	-0.005	-0.039
0	-0.002	-0.001	-0.035	0.017	-0.014	-0.003	0.025	0.003	-0.002	-0.001
1	-0.006	-0.004	0.125	0.003	0.009	-0.006	0.041	-0.024	-0.011	0.023
2	0.005	-0.003	-0.072	-0.019	-0.014	-0.003	-0.029	0.006	-0.006	-0.073
3	-0.006	0.001	0.011	-0.005	0.01	-0.013	0.041	0.016	0.003	0.093
4	0.004	0.003	-0.01	0.01	-0.021	0.004	0.036	0.02	0.004	0.034
5	-0.006	-0.002	-0.032	-0.008	0.004	0.01	-0.068	-0.021	-0.005	0.027
6	0.003	0.004	-0.031	0.012	0.013	-0.001	0.015	-0.012	0.001	0.008
7	-0.004	0.004	-0.057	0.003	0.009	-0.003	0.052	0.028	0.003	-0.015
8	0.003	0.001	-0.063	-0.001	-0.001	-0.008	-0.056	0.036	-0.002	-0.062
9	-0.004	-0.005	0.081	-0.028	0.01	-0.003	0.005	0.002	0.013	-0.05
10	0.001	0.003	0.048	-0.026	0.026	-0.002	0.017	-0.003	0	0.028
11	-0.004	0.003	0.034	-0.005	0.001	-0.008	-0.008	-0.047	0	0.014
12	-0.006	-0.005	-0.074	0.013	-0.002	-0.001	0.022	0.025	0	0.004
13	-0.001	0.002	0.051	-0.026	0.007	0.013	-0.03	-0.043	-0.007	0.106
14	0.001	0.003	0.01	-0.002	0.003	0.009	-0.027	0.036	0.001	0.027
15	0.004	0.005	-0.012	0.006	-0.003	-0.005	0.016	-0.033	-0.002	-0.006
16	-0.008	-0.001	-0.006	0.004	-0.016	-0.002	-0.008	-0.004	-0.007	-0.004
17	-0.004	0	0.028	-0.001	0.009	0.005	-0.014	-0.013	-0.007	0.016
18	0.004	-0.003	0.003	-0.002	-0.001	-0.028	0.004	-0.019	-0.001	0.011
19	-0.006	0	0.054	0.009	0.009	0	0.01	0.05	0.004	0.102
20	-0.001	0.003	0.111	-0.012	0.005	-0.005	-0.018	0.001	-0.006	-0.034

RESEARCH ARTICLE

The Dues of Ambivalence Hamper the Psychological Well-Being When Mediated By Creativity of Employees

Muhammad Shahid Tufail¹, Iram Bashir ^{*2}, and Muhammad Ishtiaq³

¹ *Layalpur Business School, Government College University Faisalabad*

² *Government College Women University Faisalabad*

³ *Layalpur Business School, Government College University Faisalabad*

Received: October 18, 2020; Accepted: December 4, 2020.

Abstract: Ambivalence or simultaneously positive and negative thoughts, emotions and intentions of an individual are an explored state in organizations. This duality reflects in inconsistent behaviors or perceptions such as psychological well-being. The results yield the impacts of ambivalence on psychological well-being in presence of creativity. The research article covers the working area of service sector employees. The essence of this study relies on the assumption that the perspectives of creativity are more applicable to the one who play a role of demonstrator. 402 employees including bankers, doctors, lecturers and other service sector firms of Pakistan as respondents of research are contacted to get answers about their creativity and its interaction. The data was collected through online questionnaire and analyzed by using SEM. Baron and Kenny approach was adopted for mediation effect. The results indicate the significant and positive relationship between creativity and productivity of teachers and lecturers working in Pakistan.

Keywords: Ambivalence, Psychological Well-being, Creativity

JEL Classification Codes: M10, O30, D91

*Corresponding author: irum003@gmail.com

1 Introduction

There is a high likely chance of existence of ambivalent thoughts, emotions and intentions intermingled with opposing behavior. The prevalence of both positive and negative attitudes in forms of ideas and thoughts explicitly impact the ability to perform and excel. The phenomenon based on the notion that attitudes are the antecedents of behaviors. Attitudes as the internal matter of concern- form the outer expressions termed as behaviors. Similarly ideas and thoughts are internal course of actions which endorse the concerned behaviors respectively (Jussim et al., 1989).

The common axiom about human mind is that it is impossible not to think till cognition as mental process is continuous and persistent. Individual may confront opposing or conflicting ideas and thoughts at the same time while working on a single project or task. Cognition is a person's ability to acquire and understand the knowledge through experience and thoughts. It involves a conscious intellectual activity such as thinking, remembering and reasoning. So far cognitive ambivalence focuses on the disagreement between beliefs. An individual having conflicting thoughts and two way opinions confront ambivalence in cognition. This taxonomy of duality is known as ambivalence (Ashforth et al., 2014; Durso et al., 2016). When this duality comes in thoughts and ideas (Piderit, 2000) it may be derived as cognitive ambivalence.

Present research indents to endorse the prevalence of ambivalence and its impacts are unavoidable. For this reason, this effort by researchers made them able to answer questions like how it occurs and whether creative actions help managers to settle the dizzying nodes. The point of interest for this research is to explore the existence of dual thoughts, emotions and intentions at the same mind along with the importance and consequences when it occurs.

2 Literature Review

Managers' attitudes toward firms and experiences are often mixed with both positive and negative reactions. For example, individuals may love eating foods that are expensive and tasty, but may dislike these items because they are fatty and unhealthy (Rothman et al., 2017). Similarly, a person might like certain brands for their excessive quality, but they may not like these brands because they are expensive than others. The objective of this research is to study the existence of ambivalence to direct that it is going to affect individual's preference; then how ambivalent attitudes can be made analytical of behavior.

2.1 Ambivalence

The difference or mixture of positive and negative feelings termed as ambivalence. Although attitudes incline to escort attitude-relevant behavior, those held with combination of two opposite feelings tend to do so to a lesser extent. The less certain an individual is in their attitude, the more sensitive it becomes, hence making imminent actions less anticipated and/or less conclusive (LaRowe, 2010). Employees with dual feelings think more about attitude-relevant information which comprehend further in multiple circumstances. Mostly, ambivalence can be designated as the instantaneous and opposing emotional responses of employees towards their self and work: love-hate, like-dislike, good-bad and anger-sensitivity, pity- cruelty and satisfaction-dissatisfaction (Sonnentag et al.,

2013). It is a usual phenomenon that employees working on areas opposite to their domain/skills, emotions and their work often feel their desires are directed against themselves.

At the organizational context one may confront a contradictory state of mind weather to leave or proceed. Ambivalence is at its puzzling height when individuals feel the instincts to both harm and protect, when the employees instantaneously have an aspiration of intimacy and distance relative to their work, to both abandon and nurture. The less sure a person is in his attitude, the more sensitive it becomes, therefore making imminent actions less anticipated and less conclusive (LaRowe, 2010) and causes turbulent state of mind (Toribio-Flórez et al., 2020).

Further Bailey & Raelin (2015) cited and instanced that an employee may be cognitively in favor of a change whilst being uncertain about the principled problem convoluted. A change may be good for the business, but is it right? The query arises for managers and change agents when there is ambivalence between these dimensions whether it can be resolved by the individual and whether or not it is open to influence change interventions of manager.

The fundamental difference between cognition and emotions is the part of mental functions that deals with logics, processes of memories and attention, planning and problem solving. Whereas opposed to cognition, emotions are circumstances caused by rewards and punishers (Rolls et al., 2005). It can be defined as thinking and feeling.. The association between emotion and cognition has captivated the importance. Generally cognition and emotion has regarded separately in last two decades. A growing form of efforts has pointed the interdependence between these two (Pessoa, 2009).

According to Piderit (2000) managers and scholars both need to pay additional attention to the dynamic processes that aid to confess and withstand ambivalence without letting it impede. In this context, ambivalence may even be an opportunity for workers to reconsider how they vision their working life as they attempt to make sense. The experience of positive and negative orientation is quite common but poorly understood. The present research intends to explore the nature of ambivalence and offer a framework of cognitive attitudes which confront with duality trigger to impact the psychological well-being. Although ambivalence is uncomfortable for workers but it has the potential to improve the productivity as well as adapting and amending the behaviors.

2.2 Psychological well-being

In the context it can be anticipated in psychological well-being as state in which employees confess lives are going well. It is the combination of feeling good and functioning effectively. However, well-being does not entail individuals to feel good all the time; the experience of painful emotions (e.g. disappointment and failure) is a part of everyday life, and being able to cope these negative or painful emotions is vital for long-term well-being. Psychological well-being of an employee not only depends on professional environment but also depends on personal decisions. The employee should create a balance between personal and professional life. If the employee is not creating this balance then his well-being will become negative but if the employee has cognitive thinking to creates a balance between professional and personal life then his psychological well-being will be healthy. An employee of the firm should have cognitive thinking toward every aspect because this

attitude will generate positivity in the employee's mind and it will lead them to positive psychological well-being (Lu et al., 2018).

Cognition of employees plays a vital role in the psychological well-being of employees. Since firms are focusing to enhance the positive well-being of employees therefore the policy makers' well-being is the critical topic in new literature. It is because of emergence of positive psychology that focus on the happiness in the workplace is increasing day by day over the past two decades. With the present and past work experience employees work cognition involves the development of schema and thought patterns that have the aspects, features, feelings and idea association (James & James, 1989).

Employees mental and psychological well-being also depends on the team in which they are working. If the employee has a good relationship with the team members then the level of psychological well-being will be high and positive. But it also depends on the employee's attitude toward its team members (Bashir et al., 2017). If the employee has cognition towards its team member then the employee's psychological well-being will be high and positive. The prevailing concept of interest seems to be in line with the information processing theory (Anderson, 1971) derived from theory of planned behaviors (Ajzen, 1985); it explores the formation of attitudes and change in attitude through integration of new information with existing cognitions and opinions. The underlying idea is congruent to the concept of ambivalence (co-existence of positive and negative attitude).

Information integration theory considers the ideas that any information could be perceived as a persuasive message. Related information has two qualities characterized as value and weight, both factors influence the attitudes. The theory states that when new information is obtained it could be the matter to affect the perception or attitude (thought, emotions, feelings, intentions) (Anderson, 1990). So we assumed that the direct effects of cognitive ambivalence on psychological well-being would influence the participants whether positively or negatively but effect occurs.

H_{1a}: Cognitive ambivalence influences the psychological well-being.

H_{1b}: Emotional ambivalence influences the psychological well-being.

H_{1c}: Intentional ambivalence influences the psychological well-being.

2.3 Creativity

Creativity is a center of interest in many disciplines like technology, engineering, business, management, psychology and economics (Hendricks, 2019). It refers to the act of turning imagination in to reality, characterized by the ability to perceive the surroundings in new ways, to explore the unclear ways, to make connectivity between unrelated phenomenon (Naiman, 2019). Organizational creativity has been well-defined as "the product of novel and useful ideas" (George & Zhou, 2002; Pratt, 2000) and many organizational researchers have initiated creative ideas – they often ascend from employees' abilities to identify associations that others did not see. As Sutton (2002) marked, creativity in the business world most often comes when employees convey new ideas to innovative people, endorsing "knowledge brokering".

H₂: Creativity influences the psychological well-being.

The role of creativity as a potential mediator for the study is evident from the notion that the conscious efforts of creativity associates cognitive ambivalence with psychological well-being. Cognition as the implicit instincts of an individual or a state of mind as debated

earlier, infers the person's creativity which has elaborated as cognition based process. So far, the examining hypothesis is derived to explore the relationship whether it exists and further if the relationship is significant then intensity of the relationship by mean of it occurrence (positive or negative) is intended to be observed. Thus, based on discussion and presumptions, we arrived at the following hypothesis:

H_{3a}: Creativity mediates the relationship between cognitive ambivalence and psychological well-being.

H_{3b}: Creativity mediates the relationship between emotional ambivalence and psychological well-being.

H_{3c}: Creativity mediates the relationship between intentional ambivalence and psychological well-being.

3 Methods

In order to get the response for the current study analysis, an online questionnaire through google form was designed and the questionnaire link was forwarded to 500 targeted respondents in Pakistan. Out of 500 respondents 402 entries were received, with the response rate of 80.4 percent. Of the respondents participating in this research almost 44 percent belong to Faisalabad whereas 56 percent respondents belong to big cities of Pakistan like Lahore, Karachi Islamabad and other small cities too incorporated in this study. Male respondents were dominated in the survey with 57 percent ratio and female contributed with the ratio of 43 percent. Most of the participants hold master degree with 45 percent and this percentage descended to bachelors at 22 percent whereas MPhil and other academic profile holders contributed in the study with 18 and 15 percent respectively. Averagely divided percentage ratio were seen between occupation of respondents like teachers, bankers, doctors and managers. The percentage falls as 34, 29, 13 and 14 percent correspondingly. 33 percent of respondents had less than one year of working experience, this was seen as highest percentage in the class. Moreover the highest percentage value which is 31 percent was found in the age group of 25 to 30. For income taxonomies 42 percent against 36K-45K was the highest ratio among other.

In a period of four months data was collected. Researchers consulted several administrators and evaluators to endorse the measurement instruments used in the study, as well as in data collection. Participants are contacted through their respective immediate bosses and are well informed about research objectives and filled in the measures through online google form in one session.

Psychological well-being- The scale of psychological well-being by (Ryff, 1989) composed of 42 items, in a Likert format with 5 alternative responses was used. The scale internal structure was analyzed by confirmatory factor analysis. The convergent validity of scale with limited items was studied through multiple studies having good results The analysis shows good fit indices as RMSEA = .054, CFI = .991, GFI = .986 and NFI = .982 at $P.000^{***}$.

Ambivalence- To measure the ambivalence, a construct of intense ambivalence developed by Raulin (1984) with 58 items has been used. The questions assess the perceptions of respondents regarding their self of being ambivalent. The study intends to classify the ambivalence into three dimensions such as cognitive ambivalence, emotional ambivalence and intentional ambivalence prescribed by (Piderit, 2000). Factor loading on three compo-

nents with some of items were observed Instrument for ambivalence has been defined and contributed in an earlier study (Bashir et al., 2017) through factor loadings.

Creativity- The measuring instrument of creativity with total of 13 items by (George & Zhou, 2002) was used. The response format is a Likert scale with 5 responses with state of agreement to disagreement. At first descriptive statistics of measures were observed, along Chronbach's alpha for reliability check. Then to meet the research objectives mediation analysis was incurred after simple linear regression. The condition of being ambivalent cognitively, emotionally and intentionally at the working time acted as the criterion variable. The analysis was run with those service employees who responded further their working requires a conscious effort of creativity to be incorporated with. The questionnaire was designed and validated after exploratory factor analysis and confirmatory factor analysis. Data analysis was done through the SPSS/AMOS 21. Preliminary analysis was run to check if there is any outlier. Normality was accessed by skewness and kurtosis of measures which remains to be in the acceptable range.

4 Results

Given that our variables were measured by self-reported questionnaire. We test the presences of ambivalence and categorized the perspective into three dimensions defined in literature. Each dimensions' items from scale were identified by factor analysis. By using AMOS, we conduct exploratory factor analysis (EFA) to observe the items of each factor and 26 items from the instrument of ambivalence were considered to forward to confirmatory factor analysis (CFA). Some of items were retained against each dimension with acceptable loadings which is 0.5 or greater (Hair et al., 2006). Similarly CFA was run on creativity and psychological well-being and items were retained with acceptable factor loadings presented in table 1.

Table 1: Factor loadings of ambivalence

Cognitive Ambivalence		Emotional Ambivalence		Intentional Ambivalence	
Factor	Loading	Factor	Loading	Factor	Loading
A16	0.56	A25	0.61	A22	0.64
A11	0.69	A21	0.51	A18	0.55
A10	0.59	A20	0.58	A14	0.61
A7	0.64	A19	0.75	A13	0.51
A6	0.65	A9	0.64	A12	0.6

The mean, standard deviation and reliability of each measure considered in this article are within the acceptable range. For reliability acceptable Chronbach's alpha value is .70 (Classics Cronbach, 1951) for present study values are .813, .851 .885 respectively. Descriptive analysis shows that mean values of ambivalence's item ranges from 3.78 to 4.02 and standard deviation ranges from .72 to .89. Descriptive statistics for psychological well-being and creativity are shown in table 2.

Table 2: Item statistics and factor loadings of psychological well-being and creativity

	Mean	Std. D	Factor loading	N
P5	3.9179	0.89092	0.7	402
P8	3.9328	0.97242	0.71	402
P11	3.9876	0.98737	0.71	402
P14	3.9179	0.89092	0.69	402
P16	3.9328	0.97242	0.8	402
P17	3.9876	0.98737	0.62	402
C1	3.7861	0.85275	0.82	402
C2	4.0348	0.89542	0.8	402
C4	4.0348	0.8982	0.73	402
C7	3.7388	0.96261	0.74	402
C10	4.0746	0.82323	0.68	402

Factor analysis and descriptive statistics endorse the data reliability so that we can have consistent results.

We found that all three kind of ambivalence had a significant positive correlation with psychological well-being ($r = .45, .46, .59$ $p < .000$) respectively. We also found that cognitive and emotional ambivalence had a significant and negative result but intentional ambivalence had positive association with creativity ($r = -.40, -.55, .64$ $p < .000$) respectively. Further creativity found a significant and positive association with psychological well-being ($r = .76$ $p < .000$). Thus the results support to test the established hypothesis. To test the hypotheses 1a, 1b and 1c we conduct a structural model in AMOS and estimated effects are positively significant as given in figure 1.

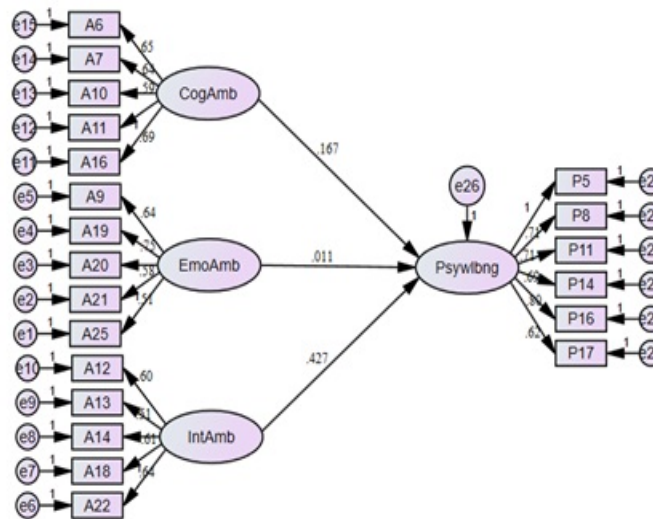


Figure 1: Structural model for direct effect

For mediating effects Baron & Kenny (1986) approach was used in a stepwise method. It requires the direct significant relationship between all variables. At first step cognitive, emotional and intentional ambivalence was regressed with psychological well-being and H_{1a} , H_{1b} and H_{1c} was supported (see Figure 1). Secondly ambivalence forms a significant relationship with creativity as $\beta_1 = -.112$, $\beta_2 = -.48$ $\beta_3 = .40$ at $P < .005$ respectively. At the third step creativity was regressed with psychological well-being and established a positive and significant relationship as $\beta = .237$ at $P < .005$. Thus H_2 was supported. These results are evident to establish a mediating relationship between variables.

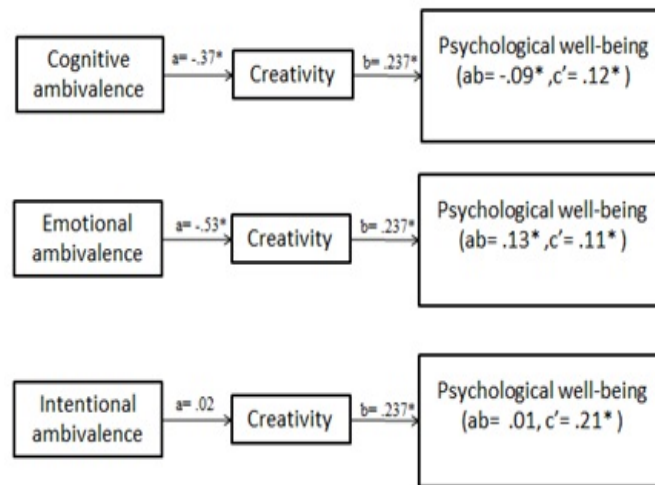


Figure 2: Path model of mediating relationship

Note: *ab* estimates represent indirect effect; *c'* estimates direct effects;

*denotes significant parameter estimates.

The direct effect of cognitive ambivalence ($c' = .12$, $p > .005$), emotional ambivalence ($c' = .11$, $p < .005$) and intentional ambivalence ($c' = .21$, $p < .005$) were significant with psychological well-being. However, when testing the creativity as an intervening variable in the relationship between ambivalence and psychological well-being, we found significant indirect effects with cognitive ambivalence ($ab = .09$, $p < .005$) and emotional ambivalence ($ab = .13$, $p < .005$) but insignificant with intentional ambivalence ($ab = .01$, $p > .005$) (see Figure 2). Thus H_{3a} , H_{3b} was partially supported but H_{3c} was not supported.

5 Discussion

Based on the information integration theory (Anderson, 1971), the conceptual model for the present research was developed. This study intends to unleash the underlying mechanism of dualistic mindset and its consequences on psychological well-being. In addition to retaliate the conception, creativity was incorporated as suggested by Fong (2006). Dual or mixed feelings and thoughts are internal instinct of individuals which leads to the incon-

sistent behaviors and actions of employees at workplace that will eventually predict their productivity (Asplund & Blacksmith, 2012; Packer, 1985).

The ambivalence categorized into three dimensions known as cognitive ambivalence, emotional ambivalence and intentional ambivalence for this study. These dimensions of ambivalence have been examined with psychological well-being. This study establishes some evidence that employees at workplace confront ambivalence as a general and natural phenomenon. The notion to describe the phenomenon is to facilitate that it does not always leave a negative impression but positive too. Particularly in our study, we found positive and significant relationships when three forms of ambivalence is associated with psychological well-being.

From the lenses of information integration theory (Anderson, 1971) rooted from theory of planned behavior (Ajzen, 1985) the state of mind becomes ambivalent when new information floats and is integrated with previous one influences the perception of being good and going well. The creative integration of information enhances the prevailing influence in a subjective manner. However, we found evidence for significant indirect effect of cognitive and emotional ambivalence on psychological well-being directly and also in presence of creativity but not in case of intentional ambivalence.

6 Conclusion

Ambivalent employees are more likely to have negative impact on their perception of living well which referred as psychological well-being. Being cognitively, emotionally and intentionally ambivalent influences the psychological well-being of service sector employees in Pakistan. The influence remains positive when the employees impede to deal ambivalence with conscious effort of creativity. Psychological well-being influenced positively in case of cognitive and emotional ambivalence which implies that employees with creativity balance their dual thoughts and emotions which enhance their perception of going good but when they have mixed intentions and aims their creative ability does not support them to maintain the psychological well-being.

The ambivalence is categorized into three dimensions known as cognitive ambivalence, emotional ambivalence and intentional ambivalence for this study. These dimensions of ambivalence have been examined with psychological well-being. This study establishes some evidence that employees at workplace confront ambivalence as a general and natural phenomenon. The notion to describe the phenomenon is to facilitate that it does not always leave a negative impression but positive too. Particularly in our study, we found positive and significant relationships when three kinds of ambivalence encounter with psychological well-being.

6.1 Implications

In particular, this contributes to the managers' work life and the individual productivity too. For case this study contributed to negate the perception about the negative consequences of ambivalence as it floats some positive too. Zulfiqar et al. (2020) signifies some negative prospects as silence, turnover and mobbing. Existence of both positive and negative instinct simultaneously moderate the exaggerations of extreme positivity and nega-

tivity to control or balance the work flow which may enhance the deviating attachment of employees at workplace.

6.2 Limitations and Future Research Direction

This study enriched the research on ambivalence, generated perspectives and its consequences with psychological well-being as a subjective outcome further incorporated with mediating role of creativity. The results need to be interpreted by taking the longitudinal research design into account. As suggested by previous research, there have been few cross-sectional studies that examined the ambivalence in different perspectives for service sector employees for instance call center (Fong, 2006). Thus, future research should consider adopting other design sectors or other units of sectors as study. A suggested study comparing the ambivalent behaviors' consequence of different sectors might be the product for future. Though factor analysis was examined using EFA and CFA (Hair et al., 1998). Future research should consider some other measurement techniques like common method variance (Podsakoff, 2003) to rule out potential biases raised from subjective interpretation of ambivalence and psychological well-being.

References

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action control* (pp. 11–39). Springer. Berlin, Heidelberg.
- Anderson, N. H. (1971). Integration theory and attitude change. *Psychological review*, 78(3), 171–206.
- Anderson, N. H. (1990). A cognitive theory of judgment and decision. In *This chapter is based on an invited paper presented at the tenth research conference on subjective probability, utility and decision making, helsinki, finland, aug 1985*. Lawrence Erlbaum Associates, Inc.
- Ashforth, B. E., Rogers, K. M., Pratt, M. G., & Pradies, C. (2014). Ambivalence in organizations: A multilevel approach. *Organization Science*, 25(5), 1453–1478.
- Asplund, J., & Blacksmith, N. (2012). Productivity through strengths. In *The oxford handbook of positive organizational scholarship*.
- Bailey, J. R., & Raelin, J. D. (2015). Organizations don't resist change, people do: Modeling individual reactions to organizational change through loss and terror management. *Organization management journal*, 12(3), 125–138.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51(6), 1173–1182.
- Bashir, I., Tufail, M. S., Ishtiaq, M., & Khan, A. N. (2017). When opportunities all around: An empirical study of psychological contract violation as an antecedent of entrepreneurial opportunity alertness. *Journal of Managerial Sciences*, 10(3), 509–527.
- Classics Cronbach, L. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297–334.

- Durso, G. R., Briñol, P., & Petty, R. E. (2016). From power to inaction: Ambivalence gives pause to the powerful. *Psychological science*, 27(12), 1660–1666.
- Fong, C. T. (2006). The effects of emotional ambivalence on creativity. *Academy of Management Journal*, 49(5), 1016–1030.
- George, J. M., & Zhou, J. (2002). Understanding when bad moods foster creativity and good ones don't: the role of context and clarity of feelings. *Journal of applied psychology*, 87(4), 687–697.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., Tatham, R. L., et al. (1998). *Multivariate data analysis* (Vol. 5) (No. 3). Prentice hall Upper Saddle River, NJ.
- Hendricks. (2019). *Types of creativity: descriptions and examples*. Retrieved 2019, from <https://study.com/academy/lesson/types-of-creativity-descriptions-examples.html>
- James, L. A., & James, L. R. (1989). Integrating work environment perceptions: Explorations into the measurement of meaning. *Journal of applied psychology*, 74(5), 739–751.
- Jussim, L., Coleman, L., & Nassau, S. R. (1989). Reactions to interpersonal evaluative feedback 1. *Journal of Applied Social Psychology*, 19(10), 862–884.
- LaRowe, N. (2010). *The supreme court, the news media, and public opinion: How people react to newspaper coverage of the supreme court*. Arizona State University. Pro Quest. 3425757.
- Lu, Y., Chui, H., Zhu, R., Zhao, H., Zhang, Y., Liao, J., & Miller, M. J. (2018). What does “good adjustment” mean for chinese international students? a qualitative investigation. *The Counseling Psychologist*, 46(8), 979–1009.
- Naiman. (2019). *Cultivating creativity at work*. Retrieved 2019, from <https://www.creativityatwork.com/about/linda-naiman>
- Packer, M. B. (1985). Productivity analysis using subjective output measures: A perceptual mapping approach for “knowledge work” organizations. In *Managerial issues in productivity analysis* (pp. 161–181). Springer.
- Pessoa, L. (2009). Cognition and emotion. *Scholarpedia*, 4(1), 4567–4576.
- Piderit, S. K. (2000). Rethinking resistance and recognizing ambivalence: A multidimensional view of attitudes toward an organizational change. *Academy of management review*, 25(4), 783–794.
- Podsakoff, N. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(8), 10–1037.
- Pratt, M. G. (2000). The good, the bad, and the ambivalent: Managing identification among amway distributors. *Administrative science quarterly*, 45(3), 456–493.
- Raulin, M. L. (1984). Development of a scale to measure intense ambivalence. *Journal of Consulting and Clinical Psychology*, 52(1), 63–72.

- Rolls, E. T., et al. (2005). *Emotion explained*. Oxford University Press, USA.
- Rothman, N. B., Pratt, M. G., Rees, L., & Vogus, T. J. (2017). Understanding the dual nature of ambivalence: Why and when ambivalence leads to good and bad outcomes. *Academy of Management Annals*, 11(1), 33–72.
- Ryff, C. D. (1989). Happiness is everything, or is it? explorations on the meaning of psychological well-being. *Journal of personality and social psychology*, 57(6), 1069–1091.
- Sonnentag, S., Unger, D., & Nägel, I. J. (2013). Workplace conflict and employee well-being. *International Journal of Conflict Management*, 24(2), 166–183.
- Sutton, R. I. (2002). *Weird ideas that work: 11 1/2 practices for promoting, managing, and sustaining innovation*. Simon and Schuster.
- Toribio-Flórez, D., van Harreveld, F., & Schneider, I. (2020). Ambivalence and interpersonal liking: The expression of ambivalence as social validation of attitudinal conflict. *Frontiers in Psychology*, 11, Article. 525301.
- Zulfiqar, A., Bashir, I., Ahmad, M. M., Fatima, N., & Ajaz, S. (2020). Mobbing exerts pressure on employees; an empirical study exploring the mediating role of mobbing between organizational silence and turnover intentions. *Paradigms(SI)*, 32–39.

Impact of Transformational Leadership on Employee Creativity: Moderated Mediation Model of Organizational Learning Culture and Support

Zahida Parveen¹, Rab Nawaz Lodhi^{*2}, and Sajeela Rabbani³

¹ Higher Education Department, Government of the Punjab, Lahore, Pakistan

² University of Central Punjab, Lahore, Pakistan

³ Faculty of Management Sciences, Riphah International University, Islamabad, Pakistan

Received: September 28, 2020; Accepted: December 10, 2020.

Abstract: This study investigated the effects of transformational leadership on employee creativity through the mediation of organizational learning culture and perceived organizational support. It further explored the moderating impact of psychological empowerment of employees and emotional intelligence of leaders between transformational leadership, organizations' learning culture, and perceived organizational support and outcomes. Data has been collected by a sample comprised of 350 teaching faculty members and heads of departments of 10 leading universities of Lahore, Pakistan through a structured questionnaire. Analyses have been done by partial least squares structural equation modeling (PLS-SEM) by using Smart PLS software. The study helps the leaders of educational institutes to understand how they can enhance the creativity of their subordinates as teaching faculty. This study contributes to the literature of creativity in higher education regarding the dependency of employee creativity on transformational leadership. The study also proves the mediation of organizational learning culture (OLC) and perceived organizational support (POS) between the relationship of TL (transformational leadership) and EC (employee creativity) and the moderation of psychological empowerment (PE) on the association of TL and EC.

Keywords: Transformational Leadership, Employee Creativity, Organizational Learning Culture, Perceived Organizational Support, Psychological Empowerment, Emotional Intelligence

JEL Classification Codes: M10, M14, O30, D91

*Corresponding author: rabnawaz.lodhi@ucp.edu.pk

1 Introduction

In the modern world, competition is increasing day by day which pressures firms to come up with competitive products. To produce innovative products, firms need to encourage creativity in all of its units (Parjanen, 2012). It serves as the prerequisite of innovation and competition (Lu et al., 2019). Organizations and their leaders have to manage creativity to keep a competitive edge (A. Lee et al., 2020; Wen et al., 2017) and leadership remains a vital component of the organizational environment. It is also evident that different styles of leaders have different impacts on employee performance, organizational success, and level of creativity in subordinates (Rabbani et al., 2014). A leader's particular behavior is the style of the leader which the leader opts-in for work settings. Research on leadership has continuously identified three major and common leadership styles named transactional, transformational, and laissez-faire leadership (Voon et al., 2011). Employees are basic assets of an organization and a reasonable competitive advantage can't be accomplished without their genuine interest. It becomes significant to use appropriate leadership style and sufficient support by the organization to induce perception in employees of being a valuable and momentous resource of the firm.. Such movement by the leadership and organization will push workers to put more exertion into their jobs and spur creativity.

Employees depend on their leaders to get obvious direction on the most proficient methods to work. They attain support to improve their creativity level, especially in the case when the leader is transformational (Cheung & Wong, 2011a). Leaders have to comprehend their transformational method for directing creativity (Jaiswal & Dhar, 2015). Transformational leaders are considered as successful to cultivate organizational learning as well. Enhancing learning and creativity all through the organization will upgrade numerous new thoughts for enhancing its managements' quality. Individuals tend to be set out conveying their new thoughts (Imran et al., 2018; Sutanto, 2017). The connection between TL and organizational learning improves expert cooperation around issues related to leaders and organizations. This further promotes education and learning. The idea of "instructor as a learner" is a way to change and viability of an instructive establishment (Kurland & Hasson-Gilad, 2015). Leaders who make reason, develop trust, and support better; approaches for taking care of issues empower a procedure for learning to occur (Jogulu, 2011).

Transformational leadership also tends to help in changing an organization to a learning organization and experience natural difficulties. An organizational manager's style of leadership assumes an imperative part in creating organizational learning. It is vital for leaders and their supporters to ceaselessly learn and share their insight to achieve better execution (Mirkamali et al., 2011). Transformational leaders show considerations by listening mindfully and giving careful consideration to their adherents' requirements for accomplishment and development by going about as guides or mentors while urging them to progress by assigning them with more goal oriented tasks, to build up their maximum capacity (Avolio et al., 2004; Kark & Shamir, 2002). Organizations' learning culture influences exploitation and exploration in the association and consequently becomes a vital factor in enhancing singular creativity. Organizations are expected to enable supervisors, to build EC by planning to incorporate OLC to expand EC (Y. J. Lee et al., 2015).

Creativity is an extremely mind boggling wonder and sets off individual and logical elements that impact various domains. EI can be a noteworthy wellspring of EC (Rodrigues et al., 2019). People with EI apply their intellect and sentiments both to strap up their

aptitude to imagine and make something innovative and valuable. Employees with an abnormal state of EI have a higher ability to think of kind ways, evaluate various decisions, and turn out with unique contemplations in their work-life (Jafri et al., 2016; A. N. Lee & Nie, 2014). Leaders with high EI may be more ready to fuse emotional ideas and apply to persuade power instrument in the scenario (A. Y. Zhang et al., 2011). Inside the work environment; where support trade is advanced among associates and leaders, this can help individuals to build up a feeling of power, and along these lines result in a more elevated amount of engagement in the creative procedure (Carmeli et al., 2013).

Creative workers help the association in desired advancement; it winds up noticeably basic for associations to distinguish and see how the creative capability of their employees could be released (Gupta & Bajaj, 2017). This study is expected to additionally expand the current literature of creativity by presenting new relations that may impact an employee's creativity in the context of OLC. In past literature, different studies are available to explain the dependence of EC on TL by taking diverse factors mediating the connection between transformational leadership and employee creativity like task conflict, relationship conflict, and knowledge sharing and others (Cheung & Wong, 2011a; Henker et al., 2015; Mittal & Dhar, 2015; Qu et al., 2015; Rabbani et al., 2014). Hence this study aims to test the association of TL and EC with the mediation of POS and OLC. It also aims to test the moderation of a leader's EI and PE among the TL and EC relationship. The objectives of this study to overcome these slits are:

- To examine the impact of Transformational Leadership on Employee Creativity.
- To test the mediation of Perceived Organizational Support (POS) and Organizational Learning culture between the association of TL (Transformational Leadership) and EC (Employee Creativity).
- To ascertain the moderation of Emotional Intelligence on the link between Transformational Leadership and Employee Creativity.
- To test the moderation of Emotional Intelligence on the association of Perceived organizational support and Creativity.
- To check the moderating function of Emotional Intelligence on the association of Organizational Learning Culture and the Creativity of the employee.
- To examine the moderating role of Psychological Empowerment on the relationship between Transformational Leadership and Perceived Organizational Support.
- To assess the moderation of Psychological Empowerment (PE) on the connection of Transformational Leadership (TL) and Perceived Organizational Support.

2 Literature Review

2.1 Transformational Leadership and Employee Creativity

Transformational leaders are the ones who remain adherent to rise above their self-interests and have a significant and phenomenal impact on subordinates (Robbins et al., n.d.). TL is portrayed as a style by which leaders move disciples through vision with an assessment mission (Bai et al., 2012; Suifan et al., 2018). The transformational of leadership is emphatically connected with the creativity of the employee (Rabbani et al., 2014). It is an evident supporter of creativity by improving devotee and social recognizable effect on the follower (Henker et al., 2015; Qu et al., 2015). Creativity is the way toward producing novel or help-

ful thoughts. The employees may show creativity in different ways, including dealing with an issue or tolerating an open entryway and using it to develop additional organizational thought (Barringer & Ireland, 2015). Creativity has been exceptionally esteemed and extensively examined for a long time in various fields, for example, business and brain science, and is a critical capability for human resources (Ma & Jiang, 2018). EC is improved by TL through the group level systems of group conflict and mutual learning. TL oversees struggle, encourages information sharing, and upgrades remarkable creativity in a group setting (Bai et al., 2016; Gong et al., 2009).

H₁: Transformational leadership has a positive effect on employee creativity.

2.2 Transformational Leadership and Perceived Organizational Support

TL is observed to be identified with POS. POS is an employee's common perspective, about how much their leaders esteem their commitment and think about their prosperity (Eisenberger et al., 2002). Supervisors can assume a basic part in the work environment since they oversee employees, and set part desires and execution standards (Koseoglu et al., 2017). At the point when employees emphatically recognize their mentor with the organization, a transformational form of leadership is decidedly identified with sentiment being maintained and esteemed by the entire business. This carries significant results as far as an emotional connection to the organization is concerned and when the manager isn't distinguished to the organization, TL does not degree to POS (Stinglhamber et al., 2015). TL decidedly influences POS. At the point when workers feel immovably connected with their supervisors, they apt to be emotionally involved with organizations. Transformational leader utilizes POS strategically actuate creative considerations among his or her employees (Cheung & Wong, 2011a). Hence, after reviewing the existing literature, we propose that there is a positive relationship between TL and POS.

H₂: There is a positive association between transformational leadership and perceived organizational support.

2.3 Perceived Organizational Support and Employee Creativity

Employees depend on a transformational form of leadership to give obvious direction on the most proficient method to make great utilization of assignment for improving the creativity level (Cheung & Wong, 2011a). The more organizational support is provided to the employees, the more creativity, we get in the employees' performance (Akgunduz & Eryilmaz, 2018). POS improves a few measurements of EC in the organization (Suifan et al., 2018). Employees tend to be more creative when they comprehend the significance of the task assigned. They additionally exhibit essential performance when the leaders guide them for viable procedures for accomplishing creativity (X. Zhang & Bartol, 2010). Therefore, after scanning the past studies, we propose that there is a positive association between POS on EC and POS also serves an intervening role in the relationship between TL and EC.

H₃: There is a positive association between perceived organizational support and employee creativity.

H₄: Perceived organizational support mediates the association of transformational leadership and employee creativity.

2.4 Transformational Leadership and Organizational Learning Culture

TL gives the best outcomes when an association is encountering quick change and is a basic impetus behind psychological security and learning culture (Nemanich & Vera, 2009; Vera & Crossan, 2004). The present competition expects firms to transform themselves to be prepared (Joo & Shim, 2010). OLC gives many-fold perception of employees (Nemanich & Vera, 2009), and there are various dimensions of OLC like psychological safety, openness to diversity of opinions, and participation in decisions making. A culture in which people are associated with deciding future strategies, TL will likely brace people to interest in decision making by articulating a sensible key vision and motivation, particularly called as learning culture of participative decision making (Nemanich & Vera, 2009).

It is identified by previous efforts that there is a positive and significant impact of TL on organizational learning (Lam, 2002; Zagoršek et al., 2009). This style of leadership is useful for picking up regard and confidence from supporters and urges workers to commit additional efforts towards organizational development. Transformational leadership encourages OLC by motivating individuals' esteem and their vision (Shao et al., 2017). Hence, after reviewing existing researches, we propose that there is a positive relationship between TL and OLC.

H₅: Transformational Leadership has a positive association with an organizational learning culture.

2.5 Organizational Learning Culture and Employee Creativity

While outlining techniques, the supervisors can build EC by making organizational learning conditions because OLC enhances the EC (Yoon et al., 2010). Employee learning presentation will most likely overhaul EC after some time, since time is required for an employee to research, learn, and create (Gong et al., 2009). Hence, we propose that OLC positively affects the EC and OLC intervenes in the association of TL and EC.

H₆: Organizational learning culture has a positive effect on employee creativity.

H₇: Organizational learning culture intervenes in the association of transformational leadership and employee creativity.

2.6 Moderating Role of Emotional Intelligence

EI is an individual's capacity to assess feelings and emotions in the self as well as other people. It comprehends the importance of these emotions, and direct one's emotions (Asrarul Haq et al., 2017; Robbins et al., n.d.). EI is an arrangement of cognitive capacities, which depends on the idea of emotions and intelligence both coordinated and interlaced. EI and EC were found more related and wound up more grounded in a circumstance where the individual has a solid propensity of being proactive (Jafri et al., 2016; X. Zhang & Bartol, 2010). The way, leaders deal with their feelings and their employee's feelings are verifiably connected to the creativity of the employees (Castro et al., 2012). High EI is also strongly linked to the creative performance of the employees in the workplace (Darvishmotevali et al., 2018; A. N. Lee & Nie, 2014). A leader's EI positively affects the employee's ability to be more creative and facilitates a constructive psychological environment which additionally enhances employee creativity (Gupta & Bajaj, 2017).

Individuals who have high EI regularize their feelings by helping other people. Showing generosity makes them feel dynamic and they can exhibit more creativity accordingly.

Encountering positive feelings activates the intellectual arsenal, such that individuals' scholarly and emotional resources are improved. This consequently elevates employees to take part in seeking out and investigation (Carmeli et al., 2013; Sánchez-Ruiz et al., 2011; Zhou, 2003). So, we propose that a leader's EI may strengthen the association of POS and EC, OLC and EC, and TL and EC positively or negatively.

H₈: A leader's emotional intelligence moderates the association of perceived organizational support and employee creativity.

H₉: The leader's emotional intelligence moderates the association of organizational learning culture and employee creativity.

H₁₀: A leader's emotional intelligence moderates the association of transformational leadership and employee creativity.

2.7 Psychological Empowerment and Perceived Organizational Support

Employees tend to participate more effectively if they are rewarded (Baird & Wang, 2010). PE is an inclination for subordinates to give self-sufficiency on their regarded work by reducing through the qualities of the workplace (Erdogan & Bauer, 2009). Leadership empowerment is characterized as a degree up to which managers articulate trust in their workers' capacities, accentuate the importance of their workers' work performance, including their workers in basic leadership, and lessen or evacuate practical imperatives on their workers (X. Zhang & Bartol, 2010). PE consists of four dimensions as meaningful work, competence, autonomy, and impact. The kindness and PE of a leader maybe, to some extent, upgrade POS help and job execution (Chan, 2017). So, we propose that the moderation of PE may exist in the relationship between TL and POS.

H₁₁: Psychological empowerment moderates the association of transformational leadership and perceived organizational support.

2.8 Moderating role of Psychological Empowerment

It is probable that more the workers see an institution giving continuous knowledge openings, empowerment, supportive involvement, and key leadership, the more likely they will be sensitively bonded to the organization (Joo & Shim, 2010). The factors of PE have the capability of predicting organizational learning respectively. It means that by focusing on psychological empowerment, it can be anticipated that the learning environment in the organization to be improved (Safari et al., 2011). Hence, after reviewing the past literature, we propose that the PE may strengthen the association of TL and OLC. The higher the psychological empowerment and advancement center, the more prominent will be the capacity to improve EC. There is a positive and significant effect of PE on EC (Tung, 2016). PE establishes the procedures that connect leadership to creativity. PE assumes an essential job to improve creativity in the employees of the association (Sun et al., 2012). Managers with an enabled outlook can show change-arranged authority practices in connections with subordinates. Employees contribute all the more legitimately in the creative decision-making process when a more grounded connection was found between remunerations and empowered conduct (Baird & Wang, 2010). Thus it is expected that PE has the potential to moderate between TL and OLC.

H₁₂: Psychological empowerment moderates the association of transformational leadership and organizational learning culture.

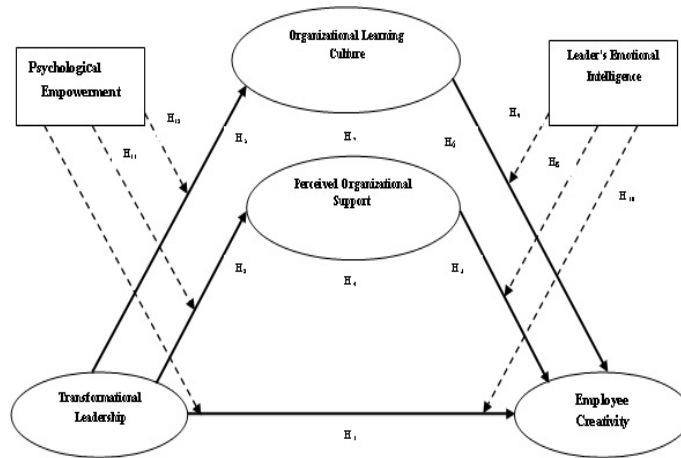


Figure 1: Conceptual Framework of the Study

H_{13} : Psychological empowerment moderates the association of transformational leadership and employee creativity. The figure depicts the mediated moderated relationship between the constructs. TL is an independent variable and EC is a dependent variable. There are two mediating variables i.e. Perceived Organizational Support and Organizational Learning Culture. Psychological Empowerment and Emotional Intelligence are the moderating variables.

3 Methodology

3.1 Sample and Procedure

The quantitative data was collected for this study through a survey questionnaire from the teaching faculty of the top 10 universities of Lahore. The target population of this study was higher educational institutions of Lahore, Pakistan. Data were collected from the selected sample of the teaching faculty of these educational institutions. The target population of this study was estimated to be 6127 faculty members. A total set of 600 questionnaires had been distributed and 350 were returned in a complete form. This sample size was calculated from the online sample size calculator by taking a 95% confidence level and 5% margin of error. So, the data has been collected from 350 teachers included in the study with a response rate of 58%.

3.2 Measurement Scales

The 5 points Likert scale was used to test all the variables of the study. Anchors for the responses correspond to 1 for Strongly Disagree to 5 for Agree. The instrument or questionnaire of transformational leadership has been taken from the initial research of Kirkbride (2006) contains 11 items. These items have been further tested in the various previous researches (Li et al., 2015; Megheirkouni, 2017; Mirkamali et al., 2011; Suifan et al., 2018). Employee creativity scale was developed in the research of Zhou & George (2001)

and further tested by Özaralli (2015) with 13 items. Emotional intelligence was an adopted instrument of 16 items from the past literature (Law et al., 2004) further tested by enough studies (Carmeli et al., 2013; Darvishmotevali et al., 2018; Jafri et al., 2016; Tsai & Lee, 2014). Perceived organizational support has been tested by the instrument developed by Rhoades & Eisenberger (2002) with 8 items. The instrument for PE was initially designed by Spreitzer (1995). This instrument was further tested in many studies (A. N. Lee & Nie, 2014; Safari et al., 2011; X. Zhang & Bartol, 2010). The instrument consisted of 12 items to test the PE in this research OLC is tested by using 9 items instrument used by Nemanich & Vera (2009).

4 Analyses and Results

The findings showed that 67.4% of respondents were males and 32.6% of respondents were females. The findings showed that 37.5% of respondents were highly qualified as above 16 years of education, 62% have 16 years of education and 0.50% were below 16 years of education. The standard deviation for gender was 0.469, for education was 0.494, and for age 0.736. PLS (SEM) technique was applied to check the dependency of different variables statistically. Multivariate regression and correlation of different variables were performed. Smart PLS software for PLS (SEM) was initially designed by Ringle et al. (2012). The present research is purely based on reflective measurement models (Coltman et al., 2008).

4.1 Convergent Validity and Outer Loadings

Convergent validity value is assessed by outer loading values, inner values, and average variance extracted (AVE) criteria given by Fornell and Larcker (1981). The reliability of the indicator is measured with the help of outer loadings. Table 1 shows that the indicator is valid for what we want to positively measure. In the past literature, it is mentioned that the significance and acceptability level of the outer loading values is at 0.5, and 0.7 is an ideal value (Chin et al., 1998; Hair Jr et al., 2016; Ringle et al., 2012).

Table 1: Factor Loadings, Reliability, and Convergent Validity

	Factor Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
EC1	0.725			
EC11	0.637			
EC12	0.604			
EC2	0.745			
EC3	0.684			
EC4	0.735			
EC5	0.619			
EC7	0.643			
EC8	0.652			
EC9	0.667	0.865	0.892	0.52
EI	0.859			
EI2	0.825			
EI3	0.842			
EI4	0.777	0.844	0.896	0.682
OLC1	0.793			
OLC2	0.779			
OLC3	0.832			
OLC4	0.694	0.778	0.858	0.602
PE	0.854			
PE2	0.879			
PE3	0.877	0.84	0.903	0.757
POS1	0.813			
POS2	0.75			
POS4	0.688			
POS5	0.719			
POS7	0.74			
POS8	0.766	0.841	0.883	0.558
TL1	0.803			
TL2	0.795			
TL3	0.691			
TL4	0.825	0.785	0.861	0.609

4.2 Discriminant Validity

Discriminant validity shows the pointers of latent constructs (variables) are not at all like and distinct from one another (Urbach et al., 2010). In PLS; cross-loadings and Fornell and Larcker criteria is used for it as shown in table 2 (Fornell & Larcker, 1981). The diagonal values of the table show the average value extracted of each variable. The comparison of diagonal values with the values of other values depicts that the AVE of the variable is greater value with that particular variable as compared to the AVE with other variables.

Table 2: Discriminant Validity

	EC	EI	OLC	POS	PE	TL
EC	0.673					
EI	0.696	0.826				
OLC	0.639	0.804	0.776			
POS	0.425	0.354	0.458	0.747		
PE	0.328	0.393	0.483	0.598	0.87	
TL	0.383	0.375	0.451	0.601	0.541	0.78

4.3 PLS Structural Model and Mediation

In PLS SEM Structural Model, the coefficient values of different relational paths of the model describe the strength or dependency of one latent variable on another latent variable. The coefficient value of different paths more than 0.30, it shows the effect of one variable on another variable (Sarstedt et al., 2014). By performing bootstrapping in the SmartPLS, the importance of coefficient value could be realized (Hair Jr et al., 2016).

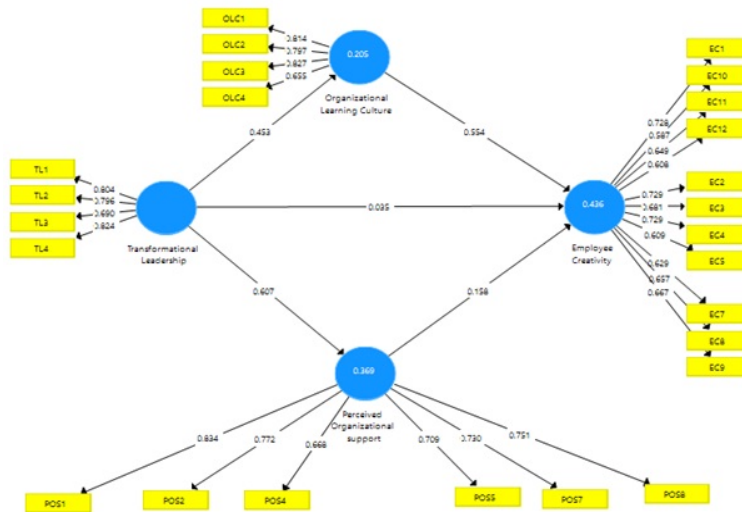


Figure 2: Mediation Relationship

Figure 2 depicts the direct and indirect relationships between different latent variables by linking the variables with an arrow. At the first, to check the impact of TL on EC, the path coefficient value is 0.035 which shows that the direct relationship of these two does not exist. It means there might be full mediation of mediating variables. The next is the relation between TL and POS. The path coefficient value between TL and POS is 0.607. It shows that there is a positive relationship between TL and POS, in other words TL impacts 60.7% on POS. The path coefficient value between POS and EC is 0.158, which shows a

positive relationship exists between the POS and EC but up to some extent. In other words, the positive change in POS will show a 15.8% positive change in EC. The path coefficient value between the relationship of TL and OLC is 0.453 which shows a positive relationship between TL and OLC. It further depicts that if we increase TL by 100%, it will increase the OLC by 45.3%. Next is the path coefficient value of OLC and EC. The coefficient value is 0.554, which shows a 100% positive change in OLC will change EC by 55.4%. Bootstrap results show that the T value is >1.96 and P-value is < 0.05 for the acceptance or rejection of the hypothesis. Both these values are valid for our mediation model as shown in table 3.

Table 3: Specific Indirect Effects

		Original Sample (O)	Sample Mean (M)	T Statis- tics	P Values	Hypothesis	Supported
TL	->	0.251	0.251	7.54	0	H7	YES
OLC	->						
EC							
TL	->	0.096	0.098	2.45	0.015	H4	YES
POS	->						
EC							

4.4 Moderation

The criteria for moderation is the same as a path coefficient value more than 0.30 show that the moderation exist. The sign of path coefficient value positive or negative, depict whether moderation strengthens the relationship or weaken the relationship of latent variables (Hair Jr et al., 2014). The following figure shows the moderating effect of a leader's EI and PE.

For the moderating effect of Leaders' EI on the relationship between TL and EC, the path coefficient value is -0.055 , it means negative moderation exists. It shows EI weaken the relationship between TL and EC by 5.5%. Next is the moderating effect of the Leader's emotional intelligence on the relationship of POS and EC, the path coefficient value is -0.114 , it means negative moderation exists. It shows EI weakens the relationship between POS and EC by 11.4%. Further from the path analysis, the moderation of EI on the relationship between OLC and EC is checked. The path coefficient value is -0.024 , it means negative moderation exists between OLC and EC. It depicts that EI weakens the relationship between OLC and EC by 2.4%. Subsequently, the path coefficient value of moderation of PE on the relationship between TL and EC is 0.111. It means PE strengthens the relationship between TL and EC by 11.1%. The path coefficient value of moderation of psychological empowerment on the relationship between TL and OLC is 0.048. It means PE strengthens the relationship between TL and EC by 4.8%. The next is the moderation of psychological empowerment on the relationship between TL and POS. The path coefficient value is -0.021 . It means psychological empowerment weakens the relationship between TL and POS by 2.1%.

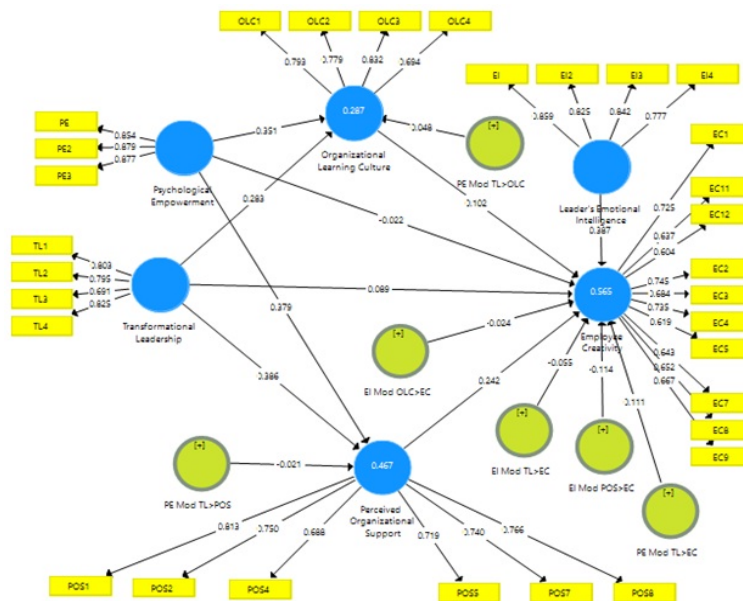


Figure 3: Moderation

5 Discussion and Conclusion

The present research examines the effect of TL on EC in the context of POS. The results of the study do not support this hypothesis. It shows the opposite results as compared to previous researches (Qu et al., 2015; Rabbani et al., 2014). A reason is in this study the mediation of OLC and POS is supported i.e. full mediation. The indirect relation between TL and EC is accepted but the direct relation is not proved. Past literature also supports the results of the current study that there is a positive association between TL and POS (Cheung & Wong, 2011a; Stinglhamber et al., 2015). The positive effect of POS on EC is also explored by this study and realized same outcomes as studies of Cheung & Wong (2011b), Suifan et al. (2018), Akgunduz & Eryilmaz (2018) and X. Zhang & Bartol (2010). Unluckily, the mediation of POS has not been tested before in the higher education sector. So, the current study shows the consistent results of mediation of POS as to the past literature available between TL and EC (Akgunduz & Eryilmaz, 2018; Cheung & Wong, 2011a; Stinglhamber et al., 2015; Suifan et al., 2018; X. Zhang & Bartol, 2010). The relationship between TL and OLC has been tested via H5. This hypothesis is also accepted in the results of the current study. The past literature also supports the results of the current study i.e. TL has a positive impact on OLC (Lam, 2002; Shao et al., 2013, 2017; Vera & Crossan, 2004). However, the effect of OLC on EC could not be established through this study.

The results of this study show the insignificant positive of OLC on the EC relationship. There are many studies available in which the positive and direct relationship between OLC and EC has been tested, and the findings show a positive impact of OLC on EC (Gong et al., 2009; Hahn et al., 2015; Yoon et al., 2010). OLC has been proved to be an intervening aspect between TL and EC. So, the current study shows the consistent results of mediation

of OLC as to the past literature illuminated (Gong et al., 2009; Hahn et al., 2015; Vera & Crossan, 2004). Leader's EI moderates the association of POS-EC and OLC-EC relationship could not be established by this study and hypothesis 8 and 9 were rejected by the data. Unlike studies of Carmeli et al. (2013); Darvishmotevali et al. (2018) and Bhatnagar (2008), this outcome contributes to not consider the role of EI of the leader for these outcomes. Similarly, PE could not prove to be a moderator of the TL-POS association. This may be because there is already a strong link between TL and POS, thus PE can serve better moderator of other studies. Chan (2017) established the effect of PE on POS directly, unlike his study we couldn't realize the same outcome. This is also the case with the moderation of PE which could not be realized by this data on TL-OLC association.

This result was inconsistent with the notion provided by Joo & Shim (2010) and Safari et al. (2011). Besides these unexpected outcomes, we realized that PE moderates the TL-EC relationship. This is because, on an individual level, leaders have a greater margin to influence employees by instituting empowerment like PE. This upshot is consistent with Tung (2016), X. Zhang & Bartol (2010), and Özaralli (2015), who assumed moderation of PE for several organizational constructs. With the help of this research, the leaders like heads of department, heads of the institutions may learn "how to create creativity in the workplace" and how they can get innovative and creative ideas from the teaching faculty. With the teacher's work ending up increasingly mind-boggling and requesting, teacher's PE unavoidably becomes progressively pivotal to teacher's ideal working in the work environment, especially to stay roused and focused on their professional roles. There is a basic requirement for educators to give more regard for build up teacher's PE in both pre-service promotions in service improvement programs, especially in upgrading teacher's sense of importance, fitness, independence, and effect. At the point when teachers feel enabled in their workplaces and from the work they do, they would be bound to feel satisfied with their activity and feel submitted towards their association and profession.

5.1 Limitations and Future Research

This study tested the direct and indirect relation of transformational leadership and EC through the mediation of POS and OLC. The study presents valuable and fruitful results in the field of research in the education sector but still has some shortcomings. The data has been collected only from the higher education sector with a limited sample size. Cross-sectional data collection method was used in which data has been collected in a single attempt. The results of the study cannot be applied to every type of organization because the responses have been taken from the higher education sector. Future research might address multilevel factors situations in which, there is a need for teams to be creative. To make results more generalize, it is suggested to do more in-depth research on comparative results of the higher education sector and the school education sector.

References

- Akgunduz, Y., & Eryilmaz, G. (2018). Does turnover intention mediate the effects of job insecurity and co-worker support on social loafing? *International Journal of Hospitality Management*, 68, 41–49.

- Asrar-ul Haq, M., Anwar, S., & Hassan, M. (2017). Impact of emotional intelligence on teacher s performance in higher education institutions of pakistan. *Future Business Journal*, 3(2), 87–97.
- Avolio, B. J., Zhu, W., Koh, W., & Bhatia, P. (2004). Transformational leadership and organizational commitment: Mediating role of psychological empowerment and moderating role of structural distance. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 25(8), 951–968.
- Bai, Y., Li, P. P., & Xi, Y. (2012). The distinctive effects of dual-level leadership behaviors on employees' trust in leadership: An empirical study from china. *Asia Pacific Journal of Management*, 29(2), 213–237.
- Bai, Y., Lin, L., & Li, P. P. (2016). How to enable employee creativity in a team context: A cross-level mediating process of transformational leadership. *Journal of Business Research*, 69(9), 3240–3250.
- Baird, K., & Wang, H. (2010). Employee empowerment: Extent of adoption and influential factors. *Personnel Review*, 39(5), 574–599.
- Barringer, B. R., & Ireland, D. (2015). *Entrepreneurship, global edition*. Pearson Education UK.
- Bhatnagar, J. (2008). Managing capabilities for talent engagement and pipeline development. *Industrial and commercial training*, 40(1), 19–28.
- Carmeli, A., Gelbard, R., & Reiter-Palmon, R. (2013). Leadership, creative problem-solving capacity, and creative performance: The importance of knowledge sharing. *Human Resource Management*, 52(1), 95–121.
- Castro, F., Gomes, J., & de Sousa, F. C. (2012). Do intelligent leaders make a difference? the effect of a leader's emotional intelligence on followers' creativity. *Creativity and Innovation Management*, 21(2), 171–182.
- Chan, S. C. (2017). Benevolent leadership, perceived supervisory support, and subordinates' performance. *Leadership & Organization Development Journal*, 38(7), 897–911.
- Cheung, M. F., & Wong, C.-S. (2011a). Transformational leadership, leader support, and employee creativity. *Leadership & Organization Development Journal*, 32(7), 656–672.
- Cheung, M. F., & Wong, C.-S. (2011b). Transformational leadership, leader support, and employee creativity. *Leadership & Organization Development Journal*, 32(7), 656–672.
- Chin, W. W., et al. (1998). The partial least squares approach to structural equation modeling. *Modern methods for business research*, 295(2), 295–336.
- Coltman, T., Devinney, T. M., Midgley, D. F., & Venaik, S. (2008). Formative versus reflective measurement models: Two applications of formative measurement. *Journal of Business Research*, 61(12), 1250–1262.
- Darvishmotevali, M., Altinay, L., & De Vita, G. (2018). Emotional intelligence and creative performance: Looking through the lens of environmental uncertainty and cultural intelligence. *International Journal of Hospitality Management*, 73, 44–54.

- Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I. L., & Rhoades, L. (2002). Perceived supervisor support: contributions to perceived organizational support and employee retention. *Journal of applied psychology, 87*(3), 565–573.
- Erdogan, B., & Bauer, T. N. (2009). Perceived overqualification and its outcomes: The moderating role of empowerment. *Journal of applied psychology, 94*(2), 557–565.
- Fornell, C., & Larcker, D. F. (1981). *Structural equation models with unobservable variables and measurement error: Algebra and statistics*. Sage Publications Sage CA: Los Angeles, CA.
- Gong, Y., Huang, J.-C., & Farh, J.-L. (2009). Employee learning orientation, transformational leadership, and employee creativity: The mediating role of employee creative self-efficacy. *Academy of management Journal, 52*(4), 765–778.
- Gupta, R., & Bajaj, B. (2017). The relationship between leader's emotional intelligence and employee creativity: A conceptual framework of mechanism. *Procedia computer science, 122*, 471–477.
- Hahn, M. H., Lee, K. C., & Lee, D. S. (2015). Network structure, organizational learning culture, and employee creativity in system integration companies: The mediating effects of exploitation and exploration. *Computers in Human Behavior, 42*, 167–175.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (pls-sem)*. Sage publications.
- Hair Jr, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (pls-sem). *European business review, 26*(2), 106–121.
- Henker, N., Sonnentag, S., & Unger, D. (2015). Transformational leadership and employee creativity: the mediating role of promotion focus and creative process engagement. *Journal of Business and Psychology, 30*(2), 235–247.
- Imran, M. K., Ilyas, M., Aslam, U., & Fatima, T. (2018). Knowledge processes and firm performance: the mediating effect of employee creativity. *Journal of Organizational Change Management, 31*(3), 512–531.
- Jafri, M. H., Dem, C., & Choden, S. (2016). Emotional intelligence and employee creativity: Moderating role of proactive personality and organizational climate. *Business Perspectives and Research, 4*(1), 54–66.
- Jaiswal, N. K., & Dhar, R. L. (2015). Transformational leadership, innovation climate, creative self-efficacy and employee creativity: A multilevel study. *International Journal of Hospitality Management, 51*, 30–41.
- Jogulu, U. (2011). Leadership that promotes organizational learning: Both sides of the coin. *Development and Learning in Organizations: An International Journal, 25*(4), 11–14.
- Joo, B.-K., & Shim, J. H. (2010). Psychological empowerment and organizational commitment: the moderating effect of organizational learning culture. *Human resource development international, 13*(4), 425–441.

- Kark, R., & Shamir, B. (2002). The dual effect of transformational leadership: Priming relational and collective selves and further effects on followers. *Transformational and charismatic leadership: The road ahead*, 2(2), 67–91.
- Kirkbride, P. (2006). Developing transformational leaders: the full range leadership model in action. *Industrial and commercial training*, 33(1), 23–32.
- Koseoglu, G., Liu, Y., & Shalley, C. E. (2017). Working with creative leaders: Exploring the relationship between supervisors' and subordinates' creativity. *The Leadership Quarterly*, 28(6), 798–811.
- Kurland, H., & Hasson-Gilad, D. R. (2015). Organizational learning and extra effort: The mediating effect of job satisfaction. *Teaching and teacher education*, 49, 56–67.
- Lam, Y. J. (2002). Defining the effects of transformational leadership on organisational learning: A cross-cultural comparison. *School Leadership & Management*, 22(4), 439–452.
- Law, K. S., Wong, C.-S., & Song, L. J. (2004). The construct and criterion validity of emotional intelligence and its potential utility for management studies. *Journal of applied Psychology*, 89(3), 483.
- Lee, A., Legood, A., Hughes, D., Tian, A. W., Newman, A., & Knight, C. (2020). Leadership, creativity and innovation: A meta-analytic review. *European Journal of Work and Organizational Psychology*, 29(1), 1–35.
- Lee, A. N., & Nie, Y. (2014). Understanding teacher empowerment: Teachers' perceptions of principal's and immediate supervisor's empowering behaviours, psychological empowerment and work-related outcomes. *Teaching and Teacher Education*, 41, 67–79.
- Lee, Y. J., Kim, S. H., & Lee, T. (2015). Effects of job characteristics, organizational culture on job satisfaction and turnover intention in public institution nurses. *Journal of Korean Academy of Nursing Administration*, 21(4), 354–365.
- Li, C., Zhao, H., & Begley, T. M. (2015). Transformational leadership dimensions and employee creativity in china: A cross-level analysis. *Journal of business research*, 68(6), 1149–1156.
- Lu, S., Bartol, K. M., Venkataramani, V., Zheng, X., & Liu, X. (2019). Pitching novel ideas to the boss: The interactive effects of employees' idea enactment and influence tactics on creativity assessment and implementation. *Academy of Management Journal*, 62(2), 579–606.
- Ma, X., & Jiang, W. (2018). Transformational leadership, transactional leadership, and employee creativity in entrepreneurial firms. *The Journal of Applied Behavioral Science*, 54(3), 302–324.
- Megheirkouni, M. (2017). Leadership styles and organizational learning in uk for-profit and non-profit sports organizations. *International Journal of Organizational Analysis*, 25(4), 596–612.
- Mirkamali, S. M., Thani, F. N., & Alami, F. (2011). Examining the role of transformational leadership and job satisfaction in the organizational learning of an automotive manufacturing company. *Procedia-Social and Behavioral Sciences*, 29, 139–148.

- Mittal, S., & Dhar, R. L. (2015). Transformational leadership and employee creativity. *Management Decision*, 53(5), 896–910.
- Nemanich, L. A., & Vera, D. (2009). Transformational leadership and ambidexterity in the context of an acquisition. *The Leadership Quarterly*, 20(1), 19–33.
- Özarallı, N. (2015). Linking empowering leader to creativity: the moderating role of psychological (felt) empowerment. *Procedia-Social and Behavioral Sciences*, 181, 366–376.
- Parjanen, S. (2012). Experiencing creativity in the organization: From individual creativity to collective creativity. *Interdisciplinary Journal of Information, Knowledge & Management*, 7, 109-128.
- Qu, R., Janssen, O., & Shi, K. (2015). Transformational leadership and follower creativity: The mediating role of follower relational identification and the moderating role of leader creativity expectations. *The Leadership Quarterly*, 26(2), 286–299.
- Rabbani, S., Imran, R., & Kamal, N. (2014). Leadership and creativity: does organizational culture matter. *Journal of Basic and Applied Scientific Research*, 4(6), 50–56.
- Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: a review of the literature. *Journal of applied psychology*, 87(4), 698.
- Ringle, C. M., Sarstedt, M., & Straub, D. W. (2012). Editor's comments: A critical look at the use of pls-sem in "mis quarterly". *MIS quarterly*, 36(1), iii-xiv.
- Robbins, S. P., Judge, T. A., & Vohra, N. (n.d.). *Organizational behaviour by pearson 18e*. Pearson Education India.
- Rodrigues, A. P., Jorge, F. E., Pires, C. A., & António, P. (2019). The contribution of emotional intelligence and spirituality in understanding creativity and entrepreneurial intention of higher education students. *Education+ Training*, 61(7/8), 870–894.
- Safari, K., Haghighi, A. S., Rastegar, A., & Jamshidi, A. (2011). The relationship between psychological empowerment and organizational learning. *Procedia-Social and Behavioral Sciences*, 30, 1147–1152.
- Sánchez-Ruiz, M. J., Hernández-Torrano, D., Pérez-González, J. C., Batey, M., & Petrides, K. (2011). The relationship between trait emotional intelligence and creativity across subject domains. *Motivation and Emotion*, 35(4), 461–473.
- Sarstedt, M., Ringle, C. M., Smith, D., Reams, R., & Hair Jr, J. F. (2014). Partial least squares structural equation modeling (pls-sem): A useful tool for family business researchers. *Journal of Family Business Strategy*, 5(1), 105–115.
- Shao, Z., Feng, Y., & Hu, Q. (2013). *The impact mechanism of transformational leadership style on exploitative and exploratory learning of ERP systems*. Supply Chain Management Conference Papers, Posters and Proceedings. 12.
- Shao, Z., Feng, Y., & Hu, Q. (2017). Impact of top management leadership styles on erp assimilation and the role of organizational learning. *Information & Management*, 54(7), 902–919.

- Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of management Journal*, 38(5), 1442–1465.
- Stinglhamber, F., Marique, G., Caesens, G., Hanin, D., & De Zanet, F. (2015). The influence of transformational leadership on followers' affective commitment. *Career Development International*, 20(6), 583–603.
- Suifan, T. S., Abdallah, A. B., & Al Janini, M. (2018). The impact of transformational leadership on employees' creativity. *Management Research Review*, 40(1), 113–132.
- Sun, L.-Y., Zhang, Z., Qi, J., & Chen, Z. X. (2012). Empowerment and creativity: A cross-level investigation. *The Leadership Quarterly*, 23(1), 55–65.
- Sutanto, E. M. (2017). The influence of organizational learning capability and organizational creativity on organizational innovation of universities in east java, indonesia. *Asia Pacific Management Review*, 22(3), 128–135.
- Tsai, C.-T., & Lee, Y.-J. (2014). Emotional intelligence and employee creativity in travel agencies. *Current Issues in Tourism*, 17(10), 862–871.
- Tung, F.-C. (2016). Does transformational, ambidextrous, transactional leadership promote employee creativity? mediating effects of empowerment and promotion focus. *International Journal of Manpower*, 37(8), 1250–1263.
- Urbach, N., Ahlemann, F., et al. (2010). Structural equation modeling in information systems research using partial least squares. *Journal of Information technology theory and application*, 11(2), 5–40.
- Vera, D., & Crossan, M. (2004). Strategic leadership and organizational learning. *Academy of management review*, 29(2), 222–240.
- Voon, M. L., Lo, M. C., Ngui, K. S., & Ayob, N. B. (2011). The influence of leadership styles on employees' job satisfaction in public sector organizations in malaysia. *International Journal of Business, Management and Social Sciences*, 2(1), 24–32.
- Wen, L., Zhou, M., & Lu, Q. (2017). The influence of leader's creativity on employees' and team creativity. *Nankai Business Review International*, 8(1), 22–38.
- Yoon, S. W., Song, J. H., Lim, D. H., & Joo, B.-K. (2010). Structural determinants of team performance: The mutual influences of learning culture, creativity, and knowledge. *Human Resource Development International*, 13(3), 249–264.
- Zagoršek, H., Dimovski, V., & Škerlavaj, M. (2009). Transactional and transformational leadership impacts on organizational learning. *Journal for East European Management Studies*, 144–165.
- Zhang, A. Y., Tsui, A. S., & Wang, D. X. (2011). Leadership behaviors and group creativity in chinese organizations: The role of group processes. *The Leadership Quarterly*, 22(5), 851–862.
- Zhang, X., & Bartol, K. M. (2010). Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of management journal*, 53(1), 107–128.

- Zhou, J. (2003). When the presence of creative coworkers is related to creativity: role of supervisor close monitoring, developmental feedback, and creative personality. *Journal of applied psychology, 88*(3), 413–422.
- Zhou, J., & George, J. M. (2001). When job dissatisfaction leads to creativity: Encouraging the expression of voice. *Academy of Management journal, 44*(4), 682–696.

RESEARCH ARTICLE

Impact of Change Related Communication on Organizational Commitment with the Mediating Effect of Job Satisfaction. Case of Banks' Merger in Pakistan

Noreen Hassan Syed ^{*1}, Nizamuddin Channa², and Imamdin Khoso³

¹ *Business Administration, Federal Urdu University of Arts Science & Technology Karachi, Pakistan*

^{2,3} *Institute of Business Administration, University of Sindh Jamshoro, Pakistan*

Received: October 27, 2020; Accepted: December 1, 2020.

Abstract: Mergers and acquisitions create greater level of uncertainty and insecurity thus may pose greater threat to implementation of change. In such situation, communication is a key. Therefore, this study aims to test how change related to communication develops commitment and job satisfaction. For this cross-sectional study data was gathered from the staff members of MCB Bank undergoing a merger with NIB in Pakistan. A survey technique used to collect data using convenience non-random sampling technique. Using structural equation modeling under Smart PLS responses analyzed with the sample size of 350. The study reveals that change related communication was positively associated to job satisfaction. Job satisfaction was positively related to organizational commitment and mediated the link between change related communication and organizational commitment. It was concluded that during organizational change, the change related to communication plays exclusive role in enhancing job satisfaction among bankers. Leaders and policy makers of the banks need to develop employee effective communication by creating an environment where employees receive sufficient information about proposed change from the top management, managers and supervisors such that it may enhance their commitment and make employee well equipped with regard to change.

Keywords: Change Related Communication, job Satisfaction, Organizational Commitment, Merger and Acquisition

JEL Classification Code: M10, D91, J28, G21

*hassannoreen945@gmail.com

1 Introduction

Due to changing demands and expectations of the customers, international obligations, cost, innovation and technological advancements, it can be observed that the organizational change statistics enormously rise in accordance of globalized trend (Mousa et al., 2020). In the global scenario, organizations will undoubtedly contend with each other to remain leading. So different organizations proceed on their way and access the best approach to prospects and flourish. One of those opportunities includes business merger and acquisition (M&A). In this specific circumstance, organizations have been seriously utilizing these strategies as key instrument for the rebuilding of the corporate sector. Initially, these patterns were reserved to United States and United Kingdom but now it has also been implemented by the emerging nations (Kouser & Saba, 2011).

Banks are an integral sector in financial mechanism that is helpful for economic development. The banking sector of Pakistan claimed competitiveness and high growth. It plays vital role in economic development expanding businesses and in investment opportunities. Further there is great role in poverty alleviation and economic advancements as well. Pakistan's banking industry was the most inefficient sector of the economy, with the passage of time financial sector growth hence the deregulation is changed, such that it became highly profitable and competitive industry (Kishwar & Ullah, 2019).

In the grid of M&A, Pakistan's banking industry for the last many years remains consistent with a State Bank of Pakistan (SBP). It requires all banks to maintain their minimum capital requirement. Therefore, a bank's only choice is to merge or acquire themselves in order to maintain required level of capital. Monetary domain of Pakistan is the major area, that is concerned in structural change i.e. merger and acquisition. Of 48 agreements of merger; 15 agreements were linked to monetary domain as mentioned by competent authority - Competition Commission of Pakistan (CCP). CCP establishes guidelines having preferences of M&A in order to help and ensure healthy competition among the companies for the sake of country's economy and development. Monetary region consists of 83 out of 121 mergers as indicated by Karachi Stock Exchange (KSE). On the other hand, banking region contains 3 acquisitions from 14 and 72 acquisitions from 208 as reflected by KSE and CCP correspondingly (Abbas et al., 2014). Thus, banks are playing out a significant and noteworthy role and indicate a huge effect on the economic progress of the country, helping in alleviating poverty (Zafar & Sulaiman, 2020). Almost every sector is playing significant role in country but banking sector growth is much higher (Abbas et al., 2014).

M&A are the most helpful business procedure utilized by various organizations in different divisions. There is a tremendous impact of M&A on the financial business in every country and around the world. As mergers and acquisitions (M&A) has become absolute strategy for rapid growth, most companies have adopted which is beneficial not only for top management but also for stakeholders like employees, communities, and the entire economy (Hassan & Lukman, 2020). Though M&A causes transformational changes that completely alters organization's current operating structure (Bari et al., 2016) but, many bank officials have endured and experienced a few psychosomatic impacts of this change like anxiety, lack of confidence, depression and distress (Goyal & Joshi, 2012). The philosophies of planned organizational change are commonly encircled within Lewin (1947) framework. The three-phase change model indicates the step wise stages of unfreezing, changing and refreezing. Therefore, workers are required to participate and remain interconnected to managers about the problems concerned with change activity. For

this, the communication practices based in under-pinning Kurt Lewis's theoretical model suggest that properly structured messages or change related communication successfully administers change process (Armenakis et al., 2000). It can avoid the change resistance or distress by the employees. Change related communication is not just the premise of human understanding; it is a valuable portion of the change management strategy that assists stakeholders to comprehend what is changing and why and how it will explicitly influence them. In order to ensure the process of changing the program successful in any organization, there is an absolute need to formulate a better communication network. The distresses of change may be resolved through effective communication. This would help for making the change strategy successful and enhancing job satisfaction. Ultimately satisfied employees tend to be more dedicated and committed towards their job.

This study is unique, it analyzes workers enhancing their self-belief, self-esteem, acknowledgment and degree of self-perception about the proposed change experience like job satisfaction as an essential mediating mechanism that deals and overwheals the emotional reaction of an employee who prefers to leave the organization at the time of change and makes them committed towards organizational goal. Empirical research shows that individuals have endured and encountered psychosomatic effects of mergers like anxiety, uneasiness, insecurity and lack of certainty. As a result it decreases organizational commitment as well as reduction in work progress. Therefore, the present study intends to deal with ensuring change related communication in establishing employee's confidence through job satisfaction particularly of banking officials with regard to organizational change i.e. NIB- Muslim Commercial Bank (MCB) merger which are two Pakistani private banks.

The aim of this paper is to examine the impact of change related communication to the workforce with the mediating effect of job satisfaction on organizational commitment as a reaction to change. Study helps gain imperative insight for the change managers, policy makers, of banking sector organizations in Pakistan to provide a way forward for mitigating employee response as a change reaction.

Literature suggests that around 70% change programs fail, it is further evident during the change process Organizational productivity and performance diminishes about 40% to 60% , due to lack of determining to manage the major cause of low productivity, less commitment and high turnover of the of the employees (Will & Mueller, 2020). As Kyaw & Classen (2010) and Shin et al. (2012) indicated reduction in employee's commitment and high turnover of employees during change initiatives have adverse effect on productivity of the company. The fact is that organizations implement change program in order to attain high progress in work performance as well as productivity. In order to fulfill the required objective of organizational change, present study enhances the literature that focuses on employee's commitment through effective change related communication. A few researchers contend that the results of organizational change rely upon individual and organizational situations. The literature is inconclusive on the effects that change, and related satisfaction have on employees but much of the organizational change literature comes from lab studies or small-scale change events, and other studies including radical transformations have come from corporate environments (Smollan, 2015). This has left a dark area on large-scale radical organizational change in other environments, such as education and banking where organizational transformations of such magnitude are less considered. Present study fills this gap and has studied the large-scale change event wrapping banking sector of Pakistan.

2 Literature Review

2.1 Change related Communication

Marchalina & Ahmad (2017) argued that communication is a two-way process of sharing information. The effective change related communication bridges the gap between individual and group. The effective change related communication is helping individuals as well organization to move from where they are now to stunning future (Hultman, 1995). Communication related to change is knowledge swap and occurs in three magnitudes, which are top to bottom, bottom to top and horizontal. It is significant for company to impart on organizational change with employees since shabby or weak degree of correspondence where the people may reflect resistance due to clarity, doubts and fear about the proposed change. Thus, change related communication is basic for change success employment (Ahmad et al., 2017).

2.2 Job Satisfaction

Job satisfaction is characterized as a supportive, optimistic and passionate status about an individual's indebtedness to their own activity or experience about their job (Locke, 1976). Robbins & Judge (2013) elaborated Job satisfaction as the general disposition of a person toward their work. In basic words, the idea insinuates the point to which an individual likes their work related matters; it includes work conditions, incentives, rewards, security, promotion, and supervisory support. Agho et al. (1992) viewed it as an essential idea in organizational studies that looks into on the responses or reactions workers have with respect to their employments. Whereas, Valaei & Rezaei (2016) view it from a general perspective which signifies to a person's basic mentality with respect to the job activity or in context to certain components of the work activity.

2.3 Organizational Commitment

It is a type of bonding and association. The procedure by which they established, this research concentrated on affective organizational commitment (Tran et al., 2020). Organizational commitment is considered as a bond between the employees and the working place. Mowday et al. (1982) study affective commitment is commonly characterized as devotion to the association, recognition and association with the firm (i.e., dignity in the corporation and performance of the objectives of the company and wish for participation in the firm i.e., the eagerness to put forth an individual attempt for the benefit of the company. Similarly, this indicates to an individual's affective responses to qualities of his engaging firm. It relates about sentiments of association to the objectives and morals of the corporation, one's job corresponding to this, and association to the firm for the betterment of its own (Ekhsan, 2019).

2.4 Change Related Communication to Job Satisfaction

No doubt, the achievement of smooth execution of change in organizations relies on the workforce, primarily organizations just proclaim change; and implementation depends upon the internalization of the workforce. Research has identified a positive relation between effective transparent communications with the employee's job satisfaction. It means

that establishing good working relations through change communication by the administration to the workforce increases work indulgence. In an organization, it is required to supply appropriate information to the workforce in order to make them well aware and ready to cope up with new challenges, new tasks, and new setups (Marchalina & Ahmad, 2017). Similarly, Syahmi et al. (2019) indicated a positive relationship between change communication and job satisfaction; arguing that the communicators should not keep information with them, rather employees should be well aware and up to date about the suggested changes. In order for them to make themselves ready, to accept challenges, and overcome the fear in advance.

The study notifies that the hiding of information will reflect negative impact on employee morale, performance, work productivity, and thus create fear culture. The Vroom's expectancy theory (Vroom, 1964) expresses that the performance of employee is built on individual factors like personality, expertise, satisfaction with the communication. Employee will be more motivated and well satisfied once he gets full knowledge and well informed with regard to change and its consequences. Therefore, with the purpose to ensure the process of changing the program successful, there is an absolute need to formulate a better communication network. In this regard, Torppa & Smith (2011) highlighted the worth of sufficient communication related to change readiness, that reports that more than fifty percent satisfaction increases due to communication. Additionally, Femi (2014) emphasized, establishing the shared understanding between managers, workers and conducting a change awareness program improves employee's work performance and work satisfaction.

Efforts should be made to share the reasons, benefits and possible outcomes about the proposed change and the related modification in their goals, objectives, policies and procedure. It was further suggested that in order to be comfortable and ready to meet the new challenges and fulfilling the expectations, employees should be well aware and interconnected. Employee's feedback and reaction should be regularly observed and action should be taken correspondingly. Consequently, this will benefit in resolving muddles and misconceptions with regard to new structure. Yue et al. (2019) demonstrates that transformational leadership and dialogic communication established trust in the employee, which ultimately improved job satisfaction. Thus, shared knowledge makes them responsive and well equipped with a new challenging situation, whereas, the trust and enthusiasm will boost their confidence in understanding regarding the need and urgency of the respective change creates satisfaction with their job. Thus, the organizational support and the movement of information about launching the change program to the work force decreases change resistance and improve job satisfaction.

Another researcher Rukmana et al. (2018) highlighted the worth of the progressive outcome of organizational communication in uprising workforce motivation and job satisfaction and reducing turnover intention and absenteeism. The positive effects of social interactive activities focused in the study reported that the valid and well-planned information should be transferred to the personnel not only in formal structure but also by means of various refreshing purposeful interactive manners. This may be done within the premises or that may be conducted other than the working hours outside working zones to establish a healthier bond between the employee and the employer as this strong bonding leads towards satisfaction and responds accordingly. This is additionally bolstered by Niculescu & Voicu (2018) who found that an affirmative association between communication and job satisfaction in the education sector and highlighted favorable outcomes of communication

while managing the change and enhancing workers' satisfaction with job. [Kyei-Poku & Miller \(2013\)](#); [Lumley et al. \(2011\)](#) and [Kaplan et al. \(2012\)](#) highlighted the similar outcome where communication was positively linked with job satisfaction.

Also, [Simoes & Esposito \(2014\)](#) cited that effective communication increases employee's acceptance to change, reduces fear culture which consequently raises their morale, participation and involvement in their work. As an employee will become more enthusiastic and motivated, it will increase work satisfaction. Classically, [Mintzberg \(1973\)](#) reported statistically proven figures that reports leader's utilize about three fourth or more of their job time busy with variety of communication. Thus, there is a logical rationalization for this finding proposes that, to some extent, communication related to change is better with regards to within the organization challenges [Klemmer & Snyder \(1972\)](#) which leads to improve work outcome as enrichment of worker's job satisfaction.

Misconception during change will make a serious effect on change program as [Kotter & Schlesinger \(1979\)](#) distinguished misinterpreting because of communication issues or absence of knowledge and specific details as one of the principles purposes behind resistance to change and reducing job satisfaction ([Ahmad et al., 2017](#)). Broaden this, [Ayatse & Ikyanyon \(2012\)](#) specified that communication is expected to set up and disperse the intentions of the organization. This is because the abilities and aptitude workers may have which will empower them to display work practices proper and applicable to the performance of the work task. It is additionally conjecturing that workers are probably going to be progressively advantageous due to the clarity of role through communication. Through effective communication with the employees, staff will get ensured that the change is beneficial with regards to new challenges and thus will increase their performance and increase job satisfaction among the employees ([Rukmana et al., 2018](#)).

In the banking and finance context, [Ali et al. \(2018\)](#) explore that individual factors such as gender, age, character, marital status and organizational factors for example pay, growth chances, transparent communication, acknowledgment and incentives. As it is expressed in Vroom's expectancy theory ([Vroom, 1964](#)) the need and expectation of individual is relied upon effort which ultimately improved their performance, better reward and compensation. Therefore, through change related communication employee gets assurance and motivation with regard to change, consequently staff will get reassurance that the change is beneficial and desired for the organization. The relationship of managers and peers with the proper transparent communication with banking employees, benefits, job terms and conditions, level of independence and job duration indicated a substantial optimistic association with job satisfaction, but the level of education of employees indicate insignificant association with job satisfaction ([Patil, 2020](#)).

Correspondingly, distinguishing the complexity of M&A as a structural change context, [Angwin et al. \(2016\)](#) determine the outcome of communications strategies in M&A and attach to the emerging literature on this domain in an African, developing economy, scenario. It endorses the significance of communication strategies in M&A and encompasses initial conclusions on the significance of communication in post-acquisition incorporation in American as well as European settings. Equally, [Sattar & Ali \(2014\)](#) indicated the positive relationship between both variables in banking contexts in Bahawalpur, Pakistan. Expanding this, [Nwagbara et al. \(2013\)](#) focused on worth of change related communication in order to enhance job satisfaction in banking employees of First Bank of Nigeria.

Therefore, on the ground of the preceding studies, it is hypothesized that:

H_1 : Change Related Communication positively related to Job Satisfaction.

2.5 Job Satisfaction to Organizational Commitment

Fulfilled employees tend to be more dedicated and devoted as Musringudin et al. (2017) suggested job satisfaction has a huge beneficial outcome on organizational commitment. Employees with greater affective commitment and normative commitment are well-satisfied workers. They are exceptionally delighted with their employments and experience positive feelings while working and want to remain part of the organization. Additionally, Yousef (2017) tested the association with job satisfaction and organizational commitment. The mindsets regarding change in the organization, their scopes with staff individuals at the native government division of state of the UAE. The investigation uncovered workers with adequate satisfaction with work conditions, pay, advancement, administrative, collaborators support, job stability, and the general occupation fulfillment has a positive relationship organizational commitment.

Kaplan et al. (2012) reached a valid conclusion and demonstrated the similar outcome that works Satisfaction was positively and considerably linked to job commitment. Nevertheless, connection was found between job satisfaction and persistence commitment. However, Hon et al. (2012) proposed a strong, yet remarkable, connection between job design as a subset of satisfaction with job and affective commitment, and not a significant connection among other aspects of job satisfaction with the employment and commitment with the entity. Similarly, Top & Gider (2013) found a considerable and supportive association between employee satisfaction with their jobs, their commitment with their work and working zone. Likewise, Ekhsan (2019) identified with respect to social exchange model, tangible incentives like salary and other benefits make employees more dedicated and loyal towards their job, as a result they decided not to leave their company. The organizational socialization practice displays changes in specific outlooks and viewpoints of employees in organizational commitment. It means when officials judge that their psychological agreement is satisfied, employees create an implicit responsibility to respond to the organization with positivity and energy that finally improves satisfaction with the job and employee's commitment with the organization Blau (1964). At the point when employees accept and realized that an organization has satisfied them, their commitments in exchange of employment like the provision of sufficient work resources, sentiments of mental agreement satisfaction are created (Suma & Lesha, 2013).

Additionally, Aggerholm & Thomsen (2020) reported that due to an increase in job satisfaction, employee organizational commitment would rise that indicates a positive favorable reflection with regard to change initiatives. In banking context, Bailey et al. (2016) confirmed positive effects of both variables to the Saudi Arabian financial institution employees. Further, Meral et al. (2016) highlighted that employees with strong devotion and trust increased job satisfaction, thus enhances organizational commitment. So, it can be viewed as employees after the new setup of the merger responds positively. Moreover, Akiate (2018) specified influence of job satisfaction on organizational commitment after a bank's merger and acquisition and found a positive relationship with a favorable outcome. So, in the light of these studies, it is hypothesized that:

H_2 : Job Satisfaction positively related to Organizational Commitment.

2.6 Job Satisfaction as a Mediator

Employees at variety of facets respond to job satisfaction differently; with sufficient information with regard to change, it enhances their comfort and satisfaction with their work

task and job. Therefore, the job satisfaction is realized to have an association with organizational commitment. As indicated by [Giri & Kumar \(2007\)](#) that posed the positive association between communication flow in the enterprise on employee's satisfaction with their job and satisfactory conduct of organizational task. For instance [Earley & Mosakowski \(2000\)](#) endorsed that in order to enhance job performance and group effectiveness, the communication pays a vital role to build up strong organizational culture and environment. Effective internal communication enlarges greater job satisfaction, which also infuses enthusiasm and capabilities of an organization ([Gray & Laidlaw, 2004](#)). Thus, efficient communication and employee communication satisfaction affects working relationship and thus improves job satisfaction as well as organizational effectiveness. While [Kucharska et al. \(2019\)](#) demonstrate that the job satisfaction is a durable moderator for collaborating information and company culture dimensions. It furthermore, results in deprived organizational communication, including decreased employee assurance, greater employee turnover, greater absenteeism, enlarged industrial unrest and reduced productivity. Further, [Ke et al. \(2020\)](#) mentioned employee having fully satisfaction with the work environment including sufficient information or change related communication has positive effect of job satisfaction.

The role of effective leadership cannot be ignore such as [Markiz et al. \(2017\)](#) argued that systematic change related communication has a significant influence on the job performance where job satisfaction is a mediating variable. It makes relationship stronger and more influential. The persuasive leadership improves work relationship in crucial time of change where it enhances employee dedication for example like [Rahman & Rashid \(2018\)](#) posed the transformational leadership leads organizational commitment towards organizational change, since effective leadership establishes exceptional work bond between the employees, thus it improves satisfaction of staff with regard to change. The satisfaction of the workers lead to organizational commitment that reflects on workers' motivation and dedication towards their job which is positive sign that employee accepts the change. In Pakistani banking sector, [Safdar & Liu \(2020\)](#) mentioned that organizational justice significantly influences banking employee's commitment. As organizational justice provides employee inside view or perceptions of justice and equality in the work environment which leads to job satisfaction, whereas, employee positivity and enriched job satisfaction shows expanding in organizational commitment.

Thus, this study filled the gap to comprehend the stimulus of change related communication on organizational commitment with the mediating effect of job satisfaction. This finding indicates the evidence from the literature that the change related communication improves satisfaction with job by employee that reflects supportive and healthy response about the structural change via strengthening the organizational commitment.

Therefore, it is hypothesized that:

H₃: Job satisfaction mediates the relationship between change related communication and organizational commitment.

Figure 1 indicates conceptual framework as per Kurt Lewin theory ([Lewin, 1947](#)), change related communication was verified to be the indispensable factor of unfreezing employee because in an organization, it is obligatory to be responsible for facts in order to make employee well aware and all set to deal with new-fangled challenges, new odd jobs, and new arrangements. Moreover, the communicators better not cling to facts with employee, rather employees are duty-bound to be well-aware and advanced about the sustained variations as a result that they possibly will make them all set to agree to take challenges and overcome the anxiety in advance. The current research lets know that the

walloping of information will replicate undesirable influence on employee spirits, presentation, and work productivity. The verdict let slip that transformational management and communication proves unfreezing deed in employee, which progresses moving change in the direction of job satisfaction and eventually refreezing job commitment.



Figure 1: Conceptual Framework

3 Materials and Methods

The quantitative research methodology is used with the cross-sectional research framework devising primary data collection with a close-ended questionnaire. All adapted instruments are well tested. This present research is grounded on merger of NIB and MCB which was endorsed in January 2016, under an offer share swap agreement in accordance to Constitute of Amalgamation as affirmed by State Bank of Pakistan on June 13, 2017 (News, n.d.). For this examination, the information acquired in January 2017 predicts the response to change by the banking staff. A convenience non-random sampling technique is applied, the justification for employing a convenience sampling approach includes access to collection of data quickly with ease and low cost. G*power software version 3.1.9.2 indicates 55 as minimum sample size. The total Population is 1,760 where 400 questionnaires given to MCB staff belong to key cities of province of Sindh (Karachi, Hyderabad, Sukkur, Larkana, Nawabshah, Mirpurkhas) out of which 350 questionnaires are received. Therefore, the return rate is 87.5%.

The initial part of survey questionnaires consists of demographic details of the respondents. The sample comprised of 58.7% male and 42% female respondents. Employee with age 21- 30 were 33.5%, ,31-40 were 29.7%, 41-50 were 25.4%, whereas 11.4% of employees were in the age group of above 51 years. 33.14% were intermediates, 32.28% were graduates, while 34.57% found masters. Employees with 1-5 years' experience were 19.4%; 6-10 years' work experience 20.57%, 11-15 years' experience found 15.4%, and 20 & above years' experience were 3.14%, where more than 20 years were 0.8%. In terms of office grade wise, 19.7% were OG-1, 29.4% were OG-2, 36.2% were OG-3 whereas 14.57% from OG-4.

The lateral part comprises of 18 items divided into 3 categories. In this study 5-point Likert scale (1 strongly agree to 5 strongly disagree) is incorporated in the questionnaire. Following are the parts of questionnaire. Six items instrument Change related communication (CRC) by Miller et al. (1994) with Cronbach alpha 0.86. The items included "The information I have received about the changes has been timely", "The information I have received has adequately answered my questions about the changes". Job satisfaction (JS)

three item scale by Miller et al. (1994) with Cronbach alpha 0.88, items are: “All in all, I am satisfied with my job”, “In general, I like working here”. The nine item Organizational commitment(OC)scale by Cook & Wall (1980) with alpha 0.81. Items included are: “I am quite proud to be able to tell people who it is I work for”, “Even if the firm were not doing too well financially, I would be reluctant to change to another employer”.

4 Data Analysis

Using structural equation modeling (SEM) Ringle et al. (2015) data analysis has been done. In measurement model analysis, the table 1 shows indicator reliability establishment as outer loadings are satisfactory (more than 0.50) (Hair Jr et al., 2017, 2014). The composite reliability (CR) establishes internal consistency reliability (more than recommended value of 0.7) (Hair Jr, 2006). Average variance extracted (AVE) are greater than 0.5 indicating convergent validity has been established (Hair et al., 2006).

Table 1: Outer Loadings, Composite Reliability and Average Variance Extracted

Construct	Items	Outer Loadings	Composite Reliability	AVE
Change Related Communication (CRC)	CRC1	0.788	0.91	0.629
	CRC2	0.782		
	CRC3	0.789		
	CRC4	0.808		
	CRC5	0.784		
	CRC6	0.808		
Job Satisfaction (JS)	JS1	0.834	0.878	0.706
	JS2	0.871		
	JS3	0.816		
Organizational Commitment(OC)	OC1	0.744	0.923	0.572
	OC2	0.734		
	OC3	0.77		
	OC4	0.712		
	OC5	0.79		
	OC6	0.773		
	OC7	0.779		
	OC8	0.766		
	OC9	0.737		

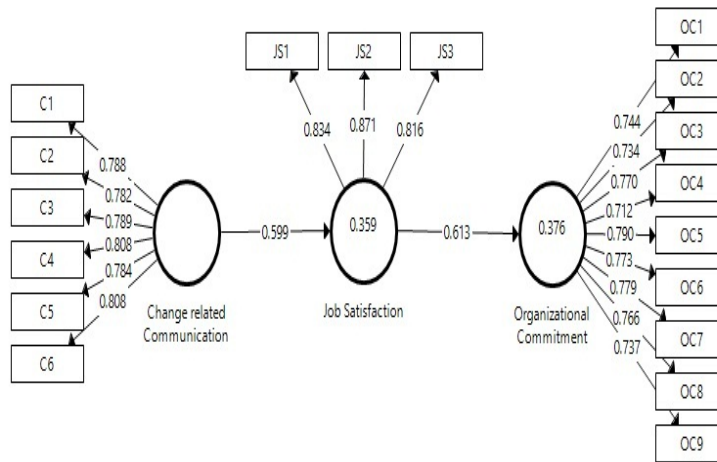


Figure 2: Outer model Smart PLS

The table 2 indicates that all values are less than 0.85 which indicate that the discriminant validity has been ascertained (Henseler et al., 2015). The technique of bootstrapping with 5000 resamples Hair Jr et al. (2017) employed using Bias-Corrected and Accelerated (BCa). In the present study, all VIFs found < 5 i.e. Job Satisfaction= 1.243 and Organizational Commitment= 2.578 which indicate there is no issue of multicollinearity as multicollinearity exist if VIF is greater than five (Hair et al., 2011). **Common method bias** arises

Table 2: Heterotrait-Monotrait Ratio (HTMT)

	1	2	3
Change related communication			
Job Satisfaction	0.706		
Organizational Commitment	0.84	0.711	

when the data gathered from single source for determining both independent and dependent variables (Jakobsen & Jensen, 2015). In current study, common method variance not observed as a significant threat, results indicate all the VIF values are 2.480 for CRC, 1.804 for JS and 1.753 for OC thus all values are less than 3.3 representing model free from common method bias.

Table 3 indicates that change related communication is positively related to job satisfaction (B=0.599, t-value 11.201, p<0.05) (Hair et al., 2017) with CI [0.499, 0.677] not overlapping zero (Preacher & Hayes, 2008). Hence, signifying the acceptance of H1. The association between change related communication and job satisfaction has small effect in this study, F2= 0.045(Wong, 2013).

Table 3 indicates that job satisfaction is positively related to organizational commitment (B=0.613, t-value 11.409, p<0.05) (Hair Jr et al., 2017) with CI [0.518, 0.678] not overlapping the zero (Preacher & Hayes, 2008) which demonstrates the acceptance of H2. This relationship has small effect size in current study, F2= 0.06 (Wong, 2013).

Table 3 demonstrating the mediation effect that job satisfaction seemed to positively mediate the indirect path coefficient between change related communication and organizational commitment ($B=0.367$, t -value 6.396, $p<0.05$) (Hair et al., 2017) with CI [-0.268, 0.455] not overlapping the zero (Preacher & Hayes, 2008). Therefore, accepting H3 in the present study.

Table 3: Significant testing results of the structural model path coefficients

Hypothesis	Relationship	Beta	Standard error	t-value	p-value	LCI	UCI	Effect size	Supported
H1:	CRC ->JS	0.599	0.054	11.201	0.499	0.677	0.045	small	Yes
H2:	JS -> OC	0.613	0.054	11.409	0.518	0.678	0.06	small	Yes
H3:	CRC ->JS ->OC	0.367	0.057	6.396	0.268	0.455	-	-	Yes

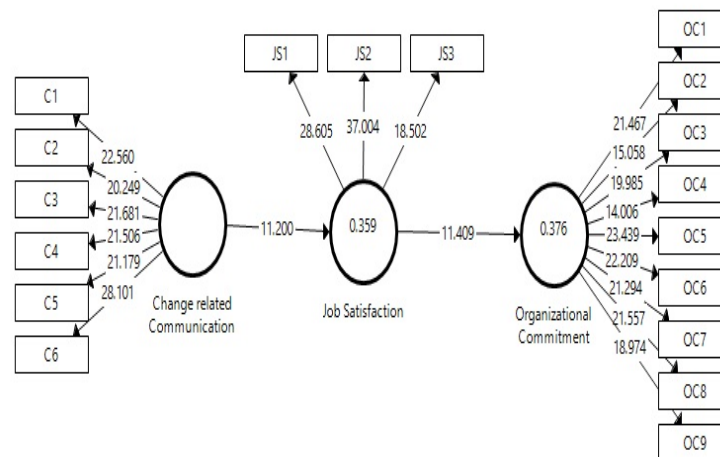


Figure 3: Inner Model – SMART PLS

The present study model defines 36% of total variance in Job Satisfaction and 38% in organizational commitment; both values indicate as moderate level of R-square (Chin et al., 1998). The procedure of blindfolding has been employed in present study that reuses sample with omission distance 7 ((Hair et al., 2013). Also, that computes Q^2 value (Geisser, 1975; Stone, 1974). This study shows moderate level of predictive relevance of both endogenous variables with the ($Q^2 > 0$) of all endogenous variables i.e., for job satisfaction = 0.246 and for organizational commitment = 0.205 (Hair Jr et al., 2017; Henseler et al., 2009).

By investigating the hypothesized association using SEM, it was identified that change related communication is positively concerned to job satisfaction. This verifies with preceding findings, which shows a positive connection between change communications to job satisfaction. As indicated by Syahmi et al. (2019) study that establishes positive association between changes related to communication and job satisfaction in academic domain. As change related communication is a mean for shared understanding, between the managers

and workers and steering change program within the organization (Femi, 2014). Additionally, Niculescu & Voicu (2018) concluded the similar positive connection between employee satisfaction with their job to commitment to organization. Ali et al. (2018) in the banking and finance context highlighted favorable outcomes of change related communication while managing the change and enhancing workers satisfaction with job. Equally, Sattar & Ali (2014) sustained the similar positive relationship between communication and job satisfaction in banking contexts in Bahawalpur, Pakistan. Further, Nwagbara et al. (2013) tested the function of effective communication in improving job satisfaction in banking sector in Nigeria. Correspondingly, distinguishing the complexity of M&A as a structural change setting Angwin et al. (2016) observes the influences of communication practices enhancing job satisfaction in African context as well as in US and European contexts that endorsed the comparable relationship.

Consequently, this research expanded the knowledge by showing a positive relationship between communication about change and employees' entire satisfaction with his job in the present study, where the end result of structural change on employees' understanding regarding change and developing change awareness and its impact on their job satisfaction can be clearly understood. Change communication has an ability to remove uncertainties and fears and can foster positive attitudes (Allen et al., 2007). It is worth of knowledge that is provided during organizational change that creates openness and thus increases job satisfaction. This change relevant communication is especially important during structural change when employees' point of uncertainties are high (Angwin et al., 2016; Schweiger & Denisi, 1991). In Pakistani context, where job insecurity is high, and it becomes worse when organizations are going to be privatized or merged into other organizations (Bakari et al., 2020). Attaining employee job satisfaction will be of great importance at such times (Nelson et al., 1995). This study posits that change specific communication will play pivotal role in this regard. Again this notion is supported by social exchange theory which argues that employee learns to adapt to new behaviors through sharing ideas, and feelings (Allen et al., 2007).

Apart from decreasing negative intentions, job satisfaction is thought to create positive attitudes as well. Our hypothesis was concerned about impact of employee satisfaction with the job on organizational commitment. Findings suggest that both variables found positively related. This is also supported by results of empirical studies. Such as Musringudin et al. (2017) endorsed the similar positive connection between job satisfaction and their commitment among university professors towards organization in academic setting of Jakarta; whereas Yousef (2017) sustained the association in native government division of the one of the state of UAE. This indicates increase in the job satisfaction which develops organizational commitment among employee. As it is believed with regards to social exchange theory, when an employee accepts that he is being recognized and rewarded accordingly, he feels gratified; ultimately it builds up commitment and thus responds supportively to the organization with regard to fulfillment of all objectives.

In the context of Pakistan; Malik et al. (2010) endorsed the similar effects in academic settings which related to educational sector. Thus, it can be comprehended that even in educational domain the similar relationship exists, and the positive outcome helps to understand how employees' efforts can be utilized and recognized by the employers. The similar relationship tested in banking context as Bailey et al. (2016) confirmed supportive effects on both variables among the Saudi Arabian bank employees; where as in Pakistani context Bushra et al. (2011) sustained the comparable association in Lahore, Pakistan. In

this way it is clear as job satisfaction is increasingly centered around the person's reaction to the activity or to explicit parts of the activity, for example, pay, management and working conditions if workers get fulfillment eventually their dependability trustworthiness and enthusiasm towards organization progresses and in this manner commitment will rise. Another finding discloses new tracks in relation to various dimensions of organizational commitment. The responses indicate towards organizational change, the positive association employees satisfaction on commitment towards their business enterprise specifically in governmental universities of Pakistan (Ekhsan, 2019).

In the banking and finance settings, with respect to structural change, [Kyei-Poku & Miller \(2013\)](#) augmented the related positive association in a Canadian Financial Institution with regard to Merger also [Meral et al. \(2016\)](#) supported the association during structural change i.e. merger after Fortis and TEB banks merger in Turkey. Further, [Akiate \(2018\)](#) bolstered the similar relationship of job satisfaction on organizational commitment after a bank's merger and acquisition. As it is obvious, that the principle proof of merger achievement is a well-satisfied worker. With respect to merger within organization, the employee's satisfaction does not occur, as it is subject to authoritative factors, for example, structure, size, salary and remuneration, working conditions, acknowledgment, and leadership and further recommended to improve satisfaction of employees as job satisfaction will indicate increment in commitment towards organization. With respect to social exchange theory that purports that, an employee accepting an advantage is under a strong normative commitment to return it somehow or another. In this way, the receipt by the workers of something far beyond what they may ordinarily anticipate from their supervisors in terms of satisfaction put them within a social commitment to reimburse it somehow or another ([McDonald & Makin, 2000](#)).

This is based on social exchange model, which purports that an employee accepting an advantage is under a strong normative commitment to return it somehow or another. In this way the receipt by the workers of something far beyond what they may ordinarily anticipate from their supervisors, put them within a social commitment to reimburse it somehow or another ([McDonald & Makin, 2000](#)). The literature confirmed job satisfaction as a mediator in variety of researches such as [Sari & Seniati \(2020\)](#) proved in academic setting, [Rafferty & Griffin \(2009\)](#) investigated audit & had job satisfactions as mediator in range of businesses and economic related activities, additionally in Pakistani Banking and finance domain, [Safdar & Liu \(2020\)](#) also reported job satisfaction as a mediator. Thus, an increase in job satisfaction develops organizational commitment among employee. Thus, it can be that linked up with the present study.

Aligning to extensive literature the present study [Syahmi et al. \(2019\)](#) endures the relationship and indicates positive link between change related communication and job satisfaction in public service academic domain where as in the banking domain [Ali et al. \(2018\)](#) augmented the similar association. Along these lines it is clear as employee awareness through effective communication about proposed change affect employee's progress to achieve the desired goals and help in enhancing job satisfaction through appreciation, establishing good working relationships with colleagues, peers and superiors, attractive incentive and rewards plans, career advancement opportunities and job security. Change related communication supports workers feel more contented as they move to the future state and embrace new working styles.

However, Vigorous communication safeguards precise data reaches to all individuals and no one remains. In the similar context [Yousef \(2017\)](#) established the positive associ-

ation between the variables that anticipated that workers with larger organizational commitment has a greater opportunity of contributing to organizational achievement, similarly the workers with greater levels of job satisfaction are more committed and dedicated. This finding adds empirical evidence to previous research that job satisfaction mediating effect in the connection with changes related communication and organizational commitment. Another study endorses the established relationship as [Torppa & Smith \(2011\)](#) determined role of effectiveness of a communication, while implementing change program, which reveals that increased awareness and acceptance level of employees towards proposed change and that proportion leads to more than fifty percent i.e. 66% thus improvement in relevant and timely information to employees would increase job satisfaction. However [Aggerholm & Thomsen \(2020\)](#) identified improvement in organizational commitment can be reflected as positive impression or reaction towards change. As relation augmented by [Kyei-Poku & Miller \(2013\)](#) related to structural change case in the Canadian banking and finance settings endorsed the similar relationship.

Moreover, the successful story of Fortis and TEB bank's merger in Turkey, narrated by [Meral et al. \(2016\)](#) reveal, employee with higher level of satisfaction with regard to working environment include remuneration, information flow, culture, job safety; it ultimately leads to higher job satisfaction which is itself is an indicator of change acceptance. However, the conclusions of this study with regard to relationship between both variables differ from the findings like [Kyei-Poku & Miller \(2013\)](#); [Lumley et al. \(2011\)](#) and [Kaplan et al. \(2012\)](#) sustained the similar conclusion where job satisfaction significantly was interrelated to affective and normative commitment while there was no noteworthy connection between employee's satisfaction with the job and commitment. Thus, this study filled the gap by indicating towards the influence of change related communication on commitment towards organization by employees with the job satisfaction as a mediator. This finding provides judicious groundwork for the concept that employee with sufficient information related to proposed change will have significant positive effect on commitment towards organization, whereas, the employee's satisfaction with the job as a mediator will strengthen the relationship with regard to structural change like merger.

4.1 Theoretical Contributions

Based on present study conceptual model, research outcome reveal diversified theoretical implications. For instance in accordance to planned organization based change theory that is surrounded inside Kurt Lewin ([Lewin, 1947](#)), three phase model of change comprises of unfreezing, moving, and refreezing phase in order to distinguish the process of change. The Lewin's change management model supports and assists this model to wrap the gap in order to overcome the ambiguity, uneasiness and resistance to change. Therefore, this model is equally beneficial for all the staff members within and outside the organization. The model points out about the structural change and its consequences such as failures or resistance. Thus, Lewin's theoretical model suggested that properly structured messages or change related communication successfully administers change process.

Furthermore, with regard to Vroom's expectancy theory, the proposed change related effective communication with the employees, staff will be ensured that the change is beneficial concerning new challenges and this specifies significant theoretical implication to the existing theory. The findings of this study endorse numerous essential factors of these theories. Additionally, referring to social exchange theory, when an employee accepts that

they are being recognized and rewarded accordingly, that in response encourages positive work upshots, such as job satisfaction and organizational commitment.

4.2 Practical Contributions

Satisfaction of the workers with the job is a key attitude affecting his/her working performance. Increase in employee job satisfaction leads them toward higher organizational commitment. As employees who lack sufficient information about change respond negatively that results in decrease in the performance that consequently reduces job satisfaction and will lead to failure of change initiatives. The results further indicate that executing effective and efficient communication practices can enrich satisfaction with their job and commitment towards organization.

4.3 Practical Implication

This study proposes that this is the first time that association has been testified in the academic literature. The managerial implications for the M&A as a structural change in the sector of banking and Finance in Pakistan are of great concerned. First, it has an underlying practical implications for the top management and executives as a consequence of the findings of present research that suggested ,executives are required to provide a comprehensive knowledge with regard to importance of change related communication to effectively employ change initiatives. Though structural change alters the existing organizational environment, customs and way of operations, as a result its impact on employee is not positive and seems unproductive as employee reflects threat of downsizing due to restructuring. In this regard, it is suggested for the top management and executives to formulate a setup so employee would be able acquire timely and highly valued change related communication in order to implement change program successfully. Hence, the top management, strategy developers and practitioners need to formulate flexible and contributing working culture equipped with suitable communication network. Further change readiness initiatives should be incorporate to boost the job satisfaction of the staff members of the organizations.

4.4 Limitations and Future Research Direction

Present study found certain limitations like it's difficult to predict and measure accurate viewpoint or state of mind of employees through responses attempted by them. Another limitation was appropriate disclosure of transparent information from the management, which could be a risk in interpreting the actual scenario. The present study might reflect bias as the data was gathered from baking sector covering major cities of Sindh province. Thus, additional research is needed to verify if the associations identified generalize to other sorts of organizations operating in other industries construction, telecom, textile, agriculture, sports, sugar, cement, fertilizers, manufacturing, mining, engineering sectors. The study can be conducted in more extensive way with different population and having larger number of samples. Furthermore, the work can be in more depth including a number of moderating and mediating variables through other personality factors for instance, employee's sociability, positivity, openness, conscientiousness, intelligence, trust etc.

4.5 Conclusion

In an atmosphere of continuous change, companies should effectively deal prompt challenges. Since we have learn that while during to organizational change, the change related communication plays exclusive role in enhancing job satisfaction among bankers play imperative role toward success. Change is compulsory in every way of life in a multifaceted, ever-changing, and global business sphere. The main purposed of present study was to examine the association of change related communication and job satisfaction, which found positively associated, the effect of job satisfaction was supported. Additionally, the findings also proved the relationship of change related communication on organizational commitment with job satisfaction as a mediator.

References

- Abbas, Q., Hunjra, A. I., Azam, R. I., Ijaz, M. S., & Zahid, M. (2014). Financial performance of banks in pakistan after merger and acquisition. *Journal of Global Entrepreneurship Research*, 4(1), 13.
- Aggerholm, H. K., & Thomsen, C. (2020). Change management and communication in public sector organizations: The gordian knot of complexity, accountability, and legitimacy. *The Handbook of Public Sector Communication*, 197–213.
- Agho, A. O., Price, J. L., & Mueller, C. W. (1992). Discriminant validity of measures of job satisfaction, positive affectivity and negative affectivity. *Journal of occupational and organizational psychology*, 65(3), 185–195.
- Ahmad, M. H., Ismail, S., Rani, W. N. M. W. M., & Wahab, M. H. (2017). Trust in management, communication and organisational commitment: Factors influencing readiness for change management in organisation. In *Aip conference proceedings* (Vol. 1891, p. 020019).
- Akiate, Y. W. D. (2018). Employees' trust towards management and organizational commitment after a bank's merger and acquisition: Mediated by procedural justice. *International Journal of Business & Management Science*, 8(1), 151–166.
- Ali, A., Hussain Khan, I., Ch, M. A., & Akram Ch, A. S. (2018). Level of job satisfaction among employees of banking industries at lahore 2016. *European Online Journal of Natural and Social Sciences: Proceedings*, 7(3), 92–108.
- Allen, J., Jimmieson, N. L., Bordia, P., & Irmer, B. E. (2007). Uncertainty during organizational change: Managing perceptions through communication. *Journal of change management*, 7(2), 187–210.
- Angwin, D. N., Mellahi, K., Gomes, E., & Peter, E. (2016). How communication approaches impact mergers and acquisitions outcomes. *The International Journal of Human Resource Management*, 27(20), 2370–2397.
- Armenakis, A. A., Harris, S. G., & Feild, H. S. (2000). Making change permanent a model for institutionalizing change interventions. *research in organizational change and development*, 12(1), 97–128.

- Ayatse, F. A., & Ikyanyon, D. N. (2012). Organizational communication, job stress and citizenship behaviour of it employees in nigerian universities. *Journal of Business Administration Research*, 1(1), 99–105.
- Bailey, A. A., Albassami, F., & Al-Meshal, S. (2016). The roles of employee job satisfaction and organizational commitment in the internal marketing-employee bank identification relationship. *International Journal of Bank Marketing*, 34(6), 821–840.
- Bakari, H., Hunjra, A. I., & Jaros, S. (2020). Commitment to change among health care workers in pakistan. *Journal of Health Management*, 22(3), 330–347.
- Bari, M. W., Fanchen, M., & Baloch, M. A. (2016). Management practices and performance of mergers and acquisitions in pakistan: mediating role of psychological contract. *SpringerPlus*, 5(1), 1527.
- Blau, P. (1964). *Power and exchange in social life*. New York: J Wiley & Sons.
- Bushra, F., Ahmad, U., & Naveed, A. (2011). Effect of transformational leadership on employees' job satisfaction and organizational commitment in banking sector of lahore (pakistan). *International journal of Business and Social science*, 2(18), 261-267.
- Chin, W. W., et al. (1998). The partial least squares approach to structural equation modeling. *Modern methods for business research*, 295(2), 295–336.
- Cook, J., & Wall, T. (1980). New work attitude measures of trust, organizational commitment and personal need non-fulfilment. *Journal of occupational psychology*, 53(1), 39–52.
- Earley, C. P., & Mosakowski, E. (2000). Creating hybrid team cultures: An empirical test of transnational team functioning. *Academy of Management journal*, 43(1), 26–49.
- Ekhsan, M. (2019). The influence job satisfaction and organizational commitment on employee turnover intention. *Journal of Business, Management, and Accounting*, 1(1), 48–55.
- Femi, A. F. (2014). The impact of communication on workers' performance in selected organisations in lagos state, nigeria. *IOSR Journal of humanities and Social Science*, 19(8), 75–82.
- Geisser, S. (1975). A new approach to the fundamental problem of applied statistics. *Sankhyā: The Indian Journal of Statistics, Series B*, 385–397.
- Giri, V. N., & Kumar, B. P. (2007). Impact of organizational climate on job satisfaction and job performance. *Psychological Studies*, 52(2), 131–133.
- Goyal, K., & Joshi, V. (2012). Merger and acquisition in banking industry: A case study of icici bank ltd. *International Journal of Research in Management*, 2(2), 30–40.
- Gray, J., & Laidlaw, H. (2004). Improving the measurement of communication satisfaction. *Management communication quarterly*, 17(3), 425–448.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis (vol. 6): Pearson prentice hall upper saddle river*. NJ.

- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). Pls-sem: Indeed a silver bullet. *Journal of Marketing theory and Practice*, 19(2), 139–152.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long range planning*, 46(1-2), 1–12.
- Hair Jr, J. F. (2006). Black, wc/babin, bj/anderson, re & tatham, rl (2006): Multivariate data analysis. *Auflage, Upper Saddle River*.
- Hair Jr, J. F., Ringle, C., Sarstedt, M., & Gudergan, S. P. (2017). Advanced issues in partial least square structural equation modeling. *SAGE*.
- Hair Jr, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (pls-sem). *European business review*, 26(2), 106–121.
- Hassan, Y., & Lukman, R. (2020). Comparative effects of pre and post bank mergers and acquisitions (m&a) on employee productivity in selected banks in nigeria. *Economic Insights-Trends & Challenges*(2).
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, 43(1), 115–135.
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In *New challenges to international marketing*. Emerald Group Publishing Limited.
- Hon, H., Pei-Ni, T., & Rasli, A. (2012). Job satisfaction and organizational commitment in a malaysian public university's library. *International Journal of Management Sciences and Business Research*, 1(6).
- Hultman, K. E. (1995). Scaling the wall of resistance. *Training & Development*, 49(10), 15-18.
- Jakobsen, M., & Jensen, R. (2015). Common method bias in public management studies. *International Public Management Journal*, 18(1), 3–30.
- Kaplan, M., Ogut, E., Kaplan, A., & Aksay, K. (2012). The relationship between job satisfaction and organizational commitment: The case of hospital employees. *World Journal of Management*, 4(1), 22–29.
- Ke, J., Zhang, J., & You, J. (2020). Effect of workplace spirituality on creative teaching behavior: Intrinsic job satisfaction as a mediator. *Social Behavior and Personality: an international journal*, 48(6), 1–14.
- Kishwar, A., & Ullah, A. (2019). The role and impact of merger & acquisition of banking sector in pakistan. *Financial Markets, Institutions and Risks*, 3(3), 113–121.
- Klemmer, E., & Snyder, F. (1972). Measurement of time spent communicating. *Journal of Communication*, 22(2), 142–158.
- Kotter, J. P., & Schlesinger, L. A. (1979). *Choosing strategies for change*. Harvard Business Review.

- Kouser, R., & Saba, I. (2011). Effects of business combination on financial performance: Evidence from pakistan's banking sector. *Australian Journal of Business and Management Research*, 1(8), 54–64.
- Kucharska, W., Bedford, D. A., et al. (2019). Love your mistakes!-they help you adapt to change. the new scale of learning culture. *GUT FME Working Papers Series A*(8), 60.
- Kyaw, V., & Classen, M. (2010). Change management studie 2010. *Business Transformation-Veränderungen erfolgreich gestalten, München (Hrsg). Capgemini Consulting, Paris*.
- Kyei-Poku, I. A., & Miller, D. (2013). Impact of employee merger satisfaction on organizational commitment and turnover intentions: A study of a canadian financial institution. *International Journal of Management*, 30(4), 205–223.
- Lewin, K. (1947). Frontiers in group dynamics: Ii. channels of group life; social planning and action research. *Human relations*, 1(2), 143–153.
- Locke, E. A. (1976). The nature and causes of job satisfaction. handbook of industrial and organizational psychology. *Chicago: RandMc Narlly*, 2(5), 360–580.
- Lumley, E., Coetzee, M., Tladinyane, R., & Ferreira, N. (2011). Exploring the job satisfaction and organisational commitment of employees in the information technology environment. *Southern African business review*, 15(1), 100–118.
- Malik, M. E., Nawab, S., Naeem, B., & Danish, R. Q. (2010). Job satisfaction and organizational commitment of university teachers in public sector of pakistan. *International journal of business and management*, 5(6), 17–26.
- Marchalina, L., & Ahmad, H. (2017). The effect of internal communication on employees' commitment to change in malaysian large companies. *Business Management and Strategy*, 8(1), 1–17.
- Markiz, Y., Margono, S., Wirawan, I. D., & Ainur, R. (2017). The influences of leadership styles, organizational communication, and job satisfaction toward employees' job performance in doing construction jobs: a study on three construction companies in jakarta. *Russian Journal of Agricultural and Socio-Economic Sciences*, 65(5), 168–180.
- McDonald, D. J., & Makin, P. J. (2000). The psychological contract, organisational commitment and job satisfaction of temporary staff. *Leadership & Organization Development Journal*, 21(2), 84–91.
- Meral, Y., Yaşlıoğlu, M., & Semerciöz, F. (2016). Effects of trust on job satisfaction and mediatory role of new identification between trust and job satisfaction in mergers. *International Journal of Managerial Studies and Research*, 4(5), 54–67.
- Miller, V. D., Johnson, J. R., & Grau, J. (1994). Antecedents to willingness to participate in a planned organizational change. , 22(1), 59–80.
- Mintzberg, H. (1973). The nature of managerial work. *Harper & Row, New York, USA*.
- Mousa, M., Abdelgaffar, H. a., Aboramadan, M., & Chaouali, W. (2020). Narcissistic leadership, employee silence, and organizational cynicism: A study of physicians in egyptian public hospitals. *International Journal of Public Administration*, 1–10.

- Mowday, R. T., Porter, L. W., & Steers, R. (1982). *Organizational linkages: The psychology of commitment, absenteeism, and turnover*. San Diego, CA: Academic Press.
- Musingudin, M., Akbar, M., & Karnati, N. (2017). The effect of organizational justice, job satisfaction, and organizational commitment on organizational citizenship behavior (ocb) of the principles. *Ijer-Indonesian Journal of Educational Review*, 4(2), 155–165.
- Nelson, A., Cooper, C. L., & Jackson, P. R. (1995). Uncertainty amidst change: The impact of privatization on employee job satisfaction and well-being. *Journal of Occupational and Organizational psychology*, 68(1), 57–71.
- News, T. (n.d.). Mcb, nib merger effective from july 7. Retrieved from <https://www.thenews.com.pk/print/215645-MCB-NIB-merger-effective-from-July-7#:~:text=LAHORE%3A%20The%20merger%20of%20NIB,a%20statement%20said%20on%20Monday>.
- Niculescu, G. D., & Voicu, F. D. (2018). Management of change in the changing school. *Revista de Management Comparat International*, 19(1), 88–96.
- Nwagbara, U., Smart Oruh, E., Ugorji, C., & Ennsra, M. (2013). The impact of effective communication on employee turnover intension at first bank of nigeria. *Economic Insights-Trends & Challenges*, 65(4), 13–21.
- Patil, M. (2020). Victor vroom's expectancy theory of motivation. <http://www.toolshero.com>.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods*, 40(3), 879–891.
- Rafferty, A. E., & Griffin, M. A. (2009). Job satisfaction in organizational research. *The Sage handbook of organizational research methods*, 196–212.
- Rahman, R., & Rashid, A. M. (2018). Job satisfaction as a mediator of the relationship between transformational leadership practice and commitment to organizational change among community college instructors. *European Journal of Social Sciences*, 57(1), 80–96.
- Ringle, C. M., Wende, S., Becker, J.-M., et al. (2015). Smartpls 3. *Boenningstedt: SmartPLS GmbH*.
- Robbins, S., & Judge, T. (2013). *Organizational behavior, 15th 15th*. Pearson Education Ltd, Essex, England.
- Rukmana, H. D., MM, S. M. P., & SE, E. N. (2018). The impact of organization communication on employee performance through employee's work motivation at pt. putri panda unit ii tulungagung, east jawa, indonesia. *KnE Social Sciences*, 211–227.
- Safdar, S., & Liu, S. (2020). The influence of justice on commitment of pakistani bankers: job satisfaction as mediator. *International Journal of Public Administration*, 43(14), 1183–1193.
- Sari, R. L., & Seniati, A. N. L. (2020). The role of job satisfaction as mediator between work-life balance and organizational commitment among lecturers. *PSYCHOLOGY AND EDUCATION*, 57(2), 106–110.

- Sattar, S., & Ali, N. (2014). Level of job satisfaction among employees of banking industries at bahawalpur. *Developing Country Studies*, 4(3), 1–6.
- Schweiger, D. M., & Denisi, A. S. (1991). Communication with employees following a merger: A longitudinal field experiment. *Academy of management journal*, 34(1), 110–135.
- Shin, J., Taylor, M. S., & Seo, M.-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.
- Simoies, P. M. M., & Esposito, M. (2014). Improving change management: How communication nature influences resistance to change. *Journal of Management Development*, 33(4), 324–341.
- Smollan, R. K. (2015). Causes of stress before, during and after organizational change: a qualitative study. *Journal of Organizational Change Management*, 28(2), 301–314.
- Stone, M. (1974). Cross-validatory choice and assessment of statistical predictions. *Journal of the Royal Statistical Society: Series B (Methodological)*, 36(2), 111–133.
- Suma, S., & Leshia, J. (2013). Job satisfaction and organizational commitment: The case of shkodra municipality. *European Scientific Journal*, 9(17), 41–51.
- Syahmi, A., Fadzil, A., Hassan, R., Abdul, S. J., Mohamad, N. S., Izzuddin, M., & Ali, R. (2019). Towards a successful organizational change: The role of dialogic communication. *International Journal of Asian Social Science*, 9(1), 86–95.
- Top, M., & Gider, O. (2013). Interaction of organizational commitment and job satisfaction of nurses and medical secretaries in turkey. *The International Journal of Human Resource Management*, 24(3), 667–683.
- Torppa, C. B., & Smith, K. L. (2011). Organizational change management: A test of the effectiveness of a communication plan. *Communication Research Reports*, 28(1), 62–73.
- Tran, K., Nguyen, P., Nguyen, T., & Ton, U. (2020). The impact of organisational commitment on the relationship between motivation and turnover intention in the public sector. *International Journal of Innovation, Creativity and Change*, 11(12), 1–25.
- Valaei, N., & Rezaei, S. (2016). Job satisfaction and organizational commitment. *Management Research Review*, 39(12), 1663–1694.
- Vroom, V. H. (1964). *Work and motivation*. Wiley.
- Will, M. G., & Mueller, J. (2020). Towards a micro-foundation of organisational change: conceptual requirements for a micro-macro framework of change. *International Journal of Learning and Change*, 12(2), 169–189.
- Yousef, D. A. (2017). Organizational commitment, job satisfaction and attitudes toward organizational change: A study in the local government. *International Journal of Public Administration*, 40(1), 77–88.

- Yue, C. A., Men, L. R., & Ferguson, M. A. (2019). Bridging transformational leadership, transparent communication, and employee openness to change: The mediating role of trust. *Public relations review*, 45(3), 101779.
- Zafar, M. B., & Sulaiman, A. A. (2020). Islamic banking in pakistan: Emergence, growth, and prospects. In *Growth and emerging prospects of international islamic banking* (pp. 61–77). IGI Global.

RESEARCH ARTICLE

Effect of Earnings Management linked Advertising Expenditures, Board Attributes and Ownership Type on Performance of Food Sector Firms of Pakistan

Mubashar Tanveer ^{*1}, Naveed Mushtaq², and Muhammad Zahid Awan³

¹ Department of Commerce University of Gujrat, Gujrat, Pakistan

² Noon Business School University of Sargodha, Sargodha, Pakistan

³ Department of Business Administration Gomal University, D.I. Khan, Pakistan

Received: July 5, 2020; Accepted: December 14, 2020.

Abstract: The intention behind this paper was to identify the effects of earnings management linked to advertising expenditures, board attributes and ownership type on financial performance of firms. Fourteen firms were selected from the food sector of Pakistan. These firms were selected by considering the availability of data for the time period 2010-2019. Data is analyzed using fixed effects panel data regression. Results indicated a positive connection between earnings management linked advertising expenditures and financial performance. This finding demonstrates that managers manage earnings by means of structuring advertising expenditures. Moreover, financial performance of firms escalates with increase in level of earnings management activities. In respect of board attributes, a positive link is found between CEO duality and performance, which indicate that CEO duality augments firm performance. In respect of ownership type, a positive link is found among managerial ownership and performance, which signifies that corporations having high (low) proportion of managerial ownership perform better (worse). Likewise, a positive link is observed among institutional ownership and performance, which implies that corporations having high (low) proportion of institutional ownership performs better (worse). It is obvious from the results that earnings management are linked to advertising expenditure, CEO duality, institutional ownership and managerial ownership has a favorable impact on the performance of firms. Financial performance is one of the imperative factors considered by investors in decision making. Therefore, the findings of present study are useful for investors as this paper documented the specific effects of various factors on financial performance. This paper investigated the issue for food sectors firms of Pakistan. Thus, this topic can be studied for other firms of Pakistan.

Keywords: Advertising Expenditures, Earnings Management, Board Characteristics, Ownership, Financial Performance, Pakistan
JEL Classification Code: M37, M49, G30, G32, G39

*Corresponding author: mubashir.tanveer@uog.edu.pk

1 Introduction

Tough economic conditions and the consequent budget limitations obligated managers to probe the efficacy of advertising expenditures of their firms (Parment et al., 2011). The gravity of this matter urged many researchers to examine this issue in past years (Acar & Temiz, 2017; Artikis et al., 2009; Kim et al., 2019; Meyer & Ujah, 2017; Peterson & Jeong, 2010; Sridhar et al., 2014; Tanveer et al., 2020). Effect on firm performance as well as communication effects have been evaluated in past to describe the outcomes of advertising expenditures. However, firm performance remained the prime focus of researchers because of its notability.

Numerous researchers have identified the reasons behind the use of earnings management activities by managers. According to these studies, the extent of use is more when firms: face high economic growth and financial constraints (Wang et al., 2015); intend to meet forecast of analysts (Beccalli et al., 2015). In such conditions, firms hold ample free cash flows (Astami et al., 2017); have high degree of corporate diversification (Alhadab & Nguyen, 2018); handle high intensity of research and development (Chouaibi et al., 2019); and eventually face fierce industry competition (Lee & Chou, 2020). Additionally, Yamaguchi (2020) specified pressure of firm performance as the cause of earnings management. It was observed that managers set mean profitability of industry as their standard and then manage earnings to meet this standard. Earnings are usually managed by means of accrual based and real activities based methods. In accrual based method, managers exploit discretionary accruals to alter earnings (Kama & Melumad, 2020). In real activities method, managers alter sales, cut down discretionary expenditures and overproduce so as to aggrandize earnings (Yamaguchi, 2020). The focus of present study is on the advertising expenditure as it is a discretionary expense and is often used by managers to alter earnings.

Besides advertising expenditures, many researchers have probed the link among different facets of corporate governance and firm performance. According to these studies, firm performance escalates when: CEO has low power and control (Han et al., 2016; Martín & Herrero, 2018); firms have high proportion of family directors in conjunction with low control and service gaps (Huybrechts et al., 2016); emotions of CEO are negative (Akansu et al., 2017); firms have low board gender diversity (Adusei et al., 2017; Maravelaki et al., 2019; Shehata et al., 2017); positions of CEO and chairmanship of board are held by separate persons (Withers & Fitz, 2017); firms incur high audit cost (A. W. Khan & Subhan, 2019); firms have low level of state ownership and high level of domestic institutional ownership (Chen et al., 2018); firms have high degree of ownership concentration and foreign ownership (Kuo et al., 2020; Wang et al., 2019); firms have high proportion of board independence (M. T. Khan et al., 2019); CEO duality exists in the situation of high uncertainty regarding the economic policy (Chang et al., 2019); firms have low level of ownership discrepancy (Yeh, 2019); firms spend large amount on corporate social responsibility (Malik et al., 2019); firms pay more non-executive compensation (Ko et al., 2020).

Advertising is extensively used by food sector firms, in order to inform customers about their products (Feng & Park, 2018). Food sector firms often spend a significant portion of their revenues on advertising. The average advertising expenditure of food firms of Pakistan is 4 percent of revenues along with the average deviation of 5 percent during the time period 2010 to 2019 (Table I). Moreover, a maximum of 28 percent of revenues have been spent in this regard. Pressure on managers to report good firm performance as well as the discretionary nature of advertising expenditures persuades to investigate whether

advertising expenditures are structured by managers for manipulating firm performance. Furthermore, findings of prior studies induce to test the link of board attributes and ownership type with firm performance specifically for the food sector of Pakistan.

Present study is noteworthy in various ways. Primarily, it is an addition to the literature of marketing-finance interface as it examined the relationship of earnings management linked to advertising expenditures with firm performance. Furthermore, it discloses the truth about the use of earnings management activities by managers. Finally, it offers investors' an insight about the effect of earnings management linked advertising expenditures, board attributes and ownership type on performance of food sector firms of Pakistan.

2 Literature Review

2.1 Advertising expenditures and firm performance

The question about the impact of marketing expenditures encouraged researchers to investigate the consequences of these expenditures. [Candemir & Zalluhoglu \(2011\)](#) reported that large marketing expenditures results in higher sales. [Chouliaras et al. \(2015\)](#) examined the contribution of marketing expenses towards firm performance. They observed that the contribution of marketing expenses towards firm performance is positive and strong. [Jaisinghani & Kanjilal \(2019\)](#) reported that the impact of marketing investment on firm performance differs with firm size. In case of large size firms, large investment results in low performance. On the other hand, large investment results in high performance in case of small size firms. [Markovitch et al. \(2020\)](#) noted the positive association between marketing expenditures and firm performance.

Firms spend huge sums of amount on advertising to communicate about their products and services ([Parment et al., 2011](#)). Therefore, various researchers examined the effect of advertising spending on firm performance. [Artikis et al. \(2009\)](#) noted the positive effects of advertising expenses on corporate profitability. They documented that large expenditures on advertising creates demand of firms' market offerings, which leads to higher sales and profits. Similarly, [Peterson & Jeong \(2010\)](#) documented that firm performance can be improved by means of large advertising expenditures. Brand value increases as a result of these expenditures, which subsequently boosts firm performance. [Sridhar et al. \(2014\)](#) examined the effect of advertising expenses on performance and the subsequent influence of performance on future advertising expenses. They noted that firms decrease advertising expenditures once they achieve high performance via large advertising expenditures.

[Acar & Temiz \(2017\)](#) investigated the effect of advertising outlays on various financial measures of banks such as income from interest, income from operations and assets return. They observed the positive association of these financial indicators with advertising expenses. Additionally, [Kim et al. \(2019\)](#) examined the impact of advertising outlays on firm performance in the periods of recession. They noticed that large expenditures improve firm performance in current as well as subsequent periods. Conversely, [Tanveer et al. \(2020\)](#) documented the adverse impact of advertising outlays on firm performance. They observed that the profitability of firms reduces because of large advertising expenditures.

[Meyer & Ujah \(2017\)](#) probed the link among discretionary advertising expenditures and firm performance. They reported a negative relationship among earnings management linked to advertising expenditures and firm performance. Moreover, researchers documented that the level of earnings management activities varies among firms. This extent

is greater for firms with low performance and smaller for firms with high performance. On the basis of this literature, following hypothesis is articulated:

H_1 : Earnings management linked advertising expenditures significantly influences firm performance.

2.2 Board attributes, ownership type, and firm performance

Existing literature shows various studies in respect of the link concerning firm performance and facets of corporate governance. Han et al. (2016) noticed that higher CEO power leads to low firm performance in the time of economic crisis. Huybrechts et al. (2016) examined the connection among proportion of family directors and firm performance. They observed that control gap and service gap positively affects this relationship. When both gaps are low, firm performance improves as a result of high proportion of family directors. Akansu et al. (2017) investigated the influence of CEO emotional state on firm performance. They reported that negative emotions are good for firms as such emotions induce CEO to perform hard tasks, which results in good firm performance. Martín & Herrero (2018) examined the effects of level of CEO control on firm performance and found that lower level of control leads to better firm performance. Chen et al. (2018) scrutinized the effects of state ownership and institutional holdings on firm performance. They reported negative link among state ownership and firm performance. Moreover, authors also reported positive connection among domestic institutional holding and firm performance. Yeh (2019) noted the negative effects of ownership discrepancy on firm performance.

Malik et al. (2019) observed the positive link among spending on corporate social responsibility (CSR) and firm performance. According to these researchers, current and future profitability of firm increases when large amount is spent on CSR. Wang et al. (2019) observed the positive influence of ownership concentration and foreign ownership on firm performance. Moreover, Kuo et al. (2020) noted the different effects of foreign and government ownership on firm performance. They recognized positive effects in respect of foreign ownership and negative effects in respect of government ownership. Ko et al. (2020) highlighted the direct link of firm performance with non-executive compensation. Moreover, authors also reported the negative association of firm performance with the fixed portion of compensation and the positive association of performance with the variable portion of compensation.

Various researchers tested the link of board size with performance in past. However, these studies reported contrary evidences regarding the link among these variables. Some studies described insignificant relationship (Allam, 2018; Assenga et al., 2018; Borlea et al., 2017). Instead, few other researchers observed a significant positive relationship (Brahma et al., 2020; Gaur et al., 2015; Martín & Herrero, 2018; Merendino & Melville, 2019). Contrarily, some studies documented a significant negative relationship (Augusto et al., 2020; M. T. Khan et al., 2019; Ko et al., 2020; Shehata et al., 2017). Considering these contradictory evidences, following hypothesis is articulated:

H_2 : Board size significantly influences firm performance.

A number of studies examined the link of board independence with performance in recent years. However, these studies presented inconsistent findings in respect to this link. Some studies observed an insignificant relationship (Allam, 2018; Assenga et al., 2018; Mayur & Saravanan, 2017; Sohail et al., 2017). Few other studies found a significant positive relationship (M. T. Khan et al., 2019; Merendino & Melville, 2019; Wu et al., 2020). Alter-

natively, certain other studies described a significant negative relationship (Dang A et al., 2018; Duppatti et al., 2020; Gaur et al., 2015; Ko et al., 2020). Considering these inconsistent evidences, following hypothesis is articulated:

H₃: Board independence significantly influences firm performance.

Several previous studies investigated the link of CEO duality with performance. Though, these studies documented diverse findings in respect of this link. Few studies found insignificant relationship (Allam, 2018; Merendino & Melville, 2019). Some other studies reported a significant positive relationship (Duppatti et al., 2020; Maravelaki et al., 2019). Contrarily, few other studies documented a significant negative relationship (Assenga et al., 2018; Brahma et al., 2020; Dang A et al., 2018; Gaur et al., 2015; Martín & Herrero, 2018; Rizwan, 2019; Withers & Fitza, 2017). In view of these conflicting findings, following hypothesis is articulated:

H₄: CEO duality significantly influences firm performance.

Some earlier studies tested the link of managerial ownership with performance. Nonetheless, these studies reported mixed findings regarding the link. Some studies found an insignificant relationship (Gaur et al., 2015; Sohail et al., 2017). On the other hand, Hoang et al. (2017) reported that the nature of link concerning managerial ownership and firm performance is not the same. It changes with change in the level of managerial ownership. However, Joe et al. (2019) revealed a positive connection among managerial ownership and firm performance. Considering these inconsistent findings, following hypothesis is articulated:

H₅: Managerial ownership significantly influences firm performance.

Several prior studies tested the link of institutional ownership with performance. But, these studies documented different results in respect of the link among these variables. Some studies reported insignificant relationship (Allam, 2018; Shahwan, 2015; Sohail et al., 2017). Whereas, few other studies described a significant positive relationship (Ko et al., 2020; Rizwan et al., 2018; Wu et al., 2020; Yeh, 2019). Conversely, Tsouknidis (2019) found a significant negative relationship between institutional ownership and firm performance. Considering these contradictory evidences, following hypothesis is articulated:

H₆: Institutional ownership significantly influences firm performance.

Additionally, various studies reported the effect of leverage on firm performance (Assenga et al., 2018; Merendino & Melville, 2019; Shahwan, 2015; Wu et al., 2020). Moreover, some studies also reported the influence of firm size on performance (Assenga et al., 2018; Augusto et al., 2020). Therefore, leverage and firm size are included in this study as control variables.

3 Methods

3.1 Data collection

The sample consists of 14 firms that belong to the food sector of Pakistan and are listed in Pakistan stock exchange. These firms are included in the sample by bearing in mind the availability of data for the time period 2010-2019. Annual reports of firms were obtained from their websites and relevant data was collected from these reports. As measurement of one variable required lag data, therefore, final data set used for data analysis contains 9 years data over the time period 2011-2019.

3.2 Methodology

3.2.1 Research model

The research model of this study is given below:

$$ROA_{i,t} = \alpha_0 + \alpha_1 EMLAE_{i,t} + \alpha_2 BS_{i,t} + \alpha_3 BI_{i,t} + \alpha_4 CD_{i,t} + \alpha_5 MO_{i,t} + \alpha_6 IO_{i,t} + \alpha_7 LEV_{i,t} + \alpha_8 SIZE_{i,t} + \varepsilon_{i,t} \quad (1)$$

In above equation, ROA represents return on asset and is the dependent variable of this study. This measure is the indicator of firm's financial performance. Explanatory variables of this study include earnings management linked advertising expenditures (EMLAE), board size (BS), board independence (BI), CEO duality (CD), managerial ownership (MO) and institutional ownership (IO). Control variables of this study include leverage (LEV) and firm size (SIZE). ROA is measured by dividing net income with total assets. EMLAE is measured by using the following equation:

$$AdvExp_{i,t}/TotalAssets_{i,t-1} = K_1 1/TotalAssets_{i,t-1} + K_2 Sales_{i,t-1}/TotalAssets_{i,t-1} + K_3 Debt_{i,t}/TotalAssets_{i,t} + \varepsilon_{i,t} \quad (2)$$

Above equation was also used by Meyer & Ujah (2017). At first, predicted values of advertising expenditures are obtained using the equation 2. Then, the difference between actual and predicted advertising expenditures is calculated to obtain the values of EMLAE.

Board size is determined on the basis of total count of directors on firm's board. Board independence is measured by dividing the count of independent directors with the total count of directors on the firm's board. CEO Duality represents a dummy variable. Value of one is assigned to this variable if the board's chairman also keeps the position of CEO, and zero if not. Managerial ownership stands for the portion of shares held by firm's directors and officers. Institutional ownership represents the portion of firm's shares held by the institutions. Leverage is ascertained by dividing total debt with total assets. Finally, firm size is ascertained via the natural log of the total assets.

3.2.2 Estimation approach

Correlations between explanatory variables and variance inflation factors (VIF) are determined first to ascertain whether the issue of multicollinearity exists or not. Unit root test is performed afterwards to check the stationarity of data. Before analyzing data using panel data regression technique, two tests are performed for selection of the appropriate model. These tests include redundant fixed effects test and Hausman test. The aim of redundant fixed effects test is to choose one from common and fixed effects model. In the event of fixed effects model selection, Hausman test is performed with the aim of selecting one from random and fixed effects model. After obtaining results using panel data regression technique, various values related with residuals are obtained and tests are performed to make sure that regression assumptions regarding residuals are fulfilled. At first, mean value of residuals is checked to confirm that it is equal to zero. Then, p-value of Jarque Bera statistic is examined to confirm that residuals are normally distributed. Next, Durbin-Watson statistic is checked to make sure that residuals are independent. Finally, cross section dependence test is conducted to ensure that residuals have constant variance.

4 Results

4.1 Descriptive statistics

Descriptive statistics of the advertising expenditures, predicted and predictor variables are presented in table 1.

Table 1: Descriptive statistics of variables

	ROA	EMLAE	BS	BI	CD	MO	IO	LEV	SIZE	ADV. EXP.
Mean	0.09	0	8.29	0.15	0.06	0.26	0.06	0.51	15.19	0.04
Median	0.08	-0.01	8	0.13	0	0.22	0.03	0.56	15.05	0.03
MAX.	0.46	0.37	12	0.4	1	0.79	0.4	1.3	21.51	0.28
MIN.	-0.48	-0.13	6	0	0	0	0	0.01	11.53	0
S.D.	0.13	0.07	1.56	0.28	0.24	0.28	0.07	0.26	1.54	0.05

4.2 Correlation analysis

The values of correlation between regressors and their VIFs are presented in table 2. Cor-

Table 2: Correlation and VIFs

	Correlations								VIF
	EMLAE	BS	BI	CD	MO	IO	LEV	SIZE	
EMLAE	1								1.18
BS	0.09	1							1.33
BI	-0.01	0.17	1						1.12
DUAL	-0.14	-0.22	-0.11	1					1.21
MO	-0.33	-0.07	-0.14	0.22	1				1.32
IO	-0.17	-0.19	-0.08	-0.05	0.1	1			1.16
LEV	0	0.28	0.11	0.15	0.28	-0.1	1		1.31
SIZE	0.09	0.41	0.27	-0.21	0	-0.29	0.25	1	1.42

relations coefficients reported in table 2 indicate weak correlations between explanatory variables. Furthermore, VIF values are less than 5. Therefore, these values point toward the absence of problematic multicollinearity.

4.3 Data stationarity test

Result of data stationarity test is presented in table 3.

4.4 Regression results

Redundant fixed effects testis conducted initially to make selection between common and fixed effects model. Table 4 contains the result of this test. Table 4 shows that the p-value of test statistic is less than 0.05. Therefore, fixed effects model is preferred. Subsequently,

Table 3: Results of data stationarity test

Variable	ROA	EMLAE	BS	BI	CD	MO	IO	LEV	SIZE
Levin, Chu t	-6.56	-6.31	-2.38	-2.43	-2.53	-160.79	-6.29	-3.56	
Lin \									
-6.82									
p-value	0	0	0.009	0.008	0.006	0	0	0	0

Table 4: Result of redundant fixed effects test

Effects Test	t-stat.	p-value
Cross-section F	24.85	0

Hausman test is conducted to make selection among random and fixed effects model. Table 5 contains the result of this test.

Table 5: Hausman test result

Test Summary	t-stat.	p-value
Cross-section random	20.7	0.01

Table 5 shows that the p-value of test statistic is less than 0.05. Hence, fixed effects model is selected for analyzing data. Result of fixed effects panel data regression is presented in table 6. Results reported in table 6 shows a significant positive relationship between earnings management linked advertising expenditures and firm performance. This result serves as a base to accept H1. Positive relationship implies that good financial performance is the outcome of large earnings management linked advertising expenditures. Moreover, low financial performance is the consequence of small earnings management linked advertising expenditures. This finding serves as evidence that managers manage earnings by means of structuring advertising expenditures. Moreover, there is positive impact of earnings management activities on firm performance. Succinctly, firm performance improves with increase in earnings management activities. The observed result contradicts with the previous finding of Meyer & Ujah (2017).

Further results indicate an insignificant link among board size and firm performance, which serves as a base for rejecting H2. Moreover, an insignificant link is noticed among board independence and firm performance. For that reason, H3 is also rejected. On the other hand, a significant positive link is found among CEO duality and firm performance. In view of this finding, H4 is accepted. This result designates that firms having CEO duality exhibit high financial performance. Contrarily, firms that lack this characteristic exhibit low financial performance. The attained result is in agreement with the prior findings of Maravelaki et al. (2019) and Duppati et al. (2020).

Further results demonstrate a significant positive link among managerial ownership and firm performance. H5 is accepted on the grounds of this finding. This result postulates that managerial ownership is beneficial for firms. High proportion of managerial ownership enhances the financial performance of firms, whereas, low proportion of managerial ownership undermines the financial performance of firms. The observed result is

Table 6: Results of fixed effects panel data regression

Dependent variable: ROA				
Variable	Coefficient	S.E	t-Stat.	p-value
Intercept	0.16	0.09	1.92	0.06
EMLAE	0.31	0.09	3.59	0
BS	0	0.01	0.46	0.65
BI	0	0.02	-0.29	0.77
CD	0.06	0.02	2.78	0.01
MO	0.09	0.04	2.1	0.04
IO	0.16	0.06	2.72	0.01
LEV	-0.06	0.05	-1.3	0.2
SIZE	-0.01	0	-1.45	0.15
R2	0.86	F-stat.		31.42
Adjusted R2	0.84	p-value (F-stat.)		0
S.E.	0.06	D-W stat.		1.62

in agreement with the former finding of [Joe et al. \(2019\)](#). Similarly, a significant positive link is found among institutional ownership and firm performance. H6 is accepted on the grounds of this finding. This result shows that institutional ownership is lucrative for firms. High fraction of institutional ownership ameliorates the financial performance of firms, while, low fraction of institutional ownership curtails the financial performance of firms. The observed evidence is coherent with the earlier findings of [Yeh \(2019\)](#), [Ko et al. \(2020\)](#) and [Wu et al. \(2020\)](#). Results of various tests of residuals are reported in table 7. According to table 7, mean value of residuals is zero. Moreover, p-value of Jarque-

Table 7: Tests of residuals

Values related to residuals		Cross section dependence test	Statistic	Prob.
Mean	0	Bias-corrected scaled LM	1.17	0.24
JarqueBera	1.11	Pesaran CD	-0.12	0.9
p-value	0.57			

Bera statistic point towards the normal distribution of residuals. Furthermore, p-value of test statistic of cross section dependence tests indicate the existence of homoscedasticity in residuals. Moreover, Durbin-Watson statistic reported in table 6 is too far from 0 and near to 2, which indicates the absence of serial correlation.

5 Discussion and Conclusion

5.1 Conclusion

The intention behind this study was to recognize the individual effects of earnings management linked advertising expenditures, board attributes and ownership type on financial performance of firms. Results show a significant positive connection among earnings management linked advertising expenditures and financial performance. This finding in-

dicates that the management of earnings through structuring advertising expenditures has a propitious influence on financial performance of firms. Moreover, financial performance escalates with increase in level of earnings management activities. In respect of board attributes, a significant positive link is found among CEO duality and performance, which indicate that financial performance gets better with CEO duality. Contrariwise, an insignificant relationship is observed among board size and financial performance. Similarly, an insignificant relationship is found among board independence and financial performance.

In respect of ownership type, a significant positive link is found among managerial ownership and financial performance, which indicate that managerial ownership is favorable for firms. Precisely, firms comprising high proportion of managerial ownership perform better than the firms encompassing low proportion of managerial ownership. Likewise, a significant positive link is observed among institutional ownership and financial performance. This finding indicates that firms encompassing high proportion of institutional ownership perform better than the firms containing low proportion of institutional ownership. In essence, it is obvious from the results that earnings management linked advertising expenditure, CEO duality, managerial ownership and institutional ownership have propitious influence on the financial performance of firms.

5.2 Discussion

The results of the study supported the notion that managers use real activities method to manage earnings of their firms. Regression results revealed a positive connection among earnings management linked advertising expenditures and firm performance. This substantiates that managers cunningly use their discretion regarding the advertising expenditures in order to attain desired firm performance. Moreover, the extensive use of this activity results in better firm performance. Additionally, the observed positive association of CEO duality with firm performance indicates that the possession of designations of CEO and board chairmanship by the same person results in better firm performance. Furthermore, the detected positive association of managerial ownership with firm performance point towards the favorable effects of high level of managerial ownership. Similarly, the observed positive association of institutional ownership with firm performance indicates that high level of institutional ownership results in better firm performance.

5.3 Implications

Financial performance is one of the imperative factors considered by investors in selection of firms. This study documented the specific effects of earnings management linked advertising expenditures, board attributes and ownership type on financial performance. Therefore, the findings reported in this paper are useful for investors.

5.4 Limitations and future research direction

The first limitation of this study is that it focused on only one aspect of real activities method of earnings management. Moreover, this study focused on food sector firms of Pakistan. Thus, this topic can be studied for other sectors of Pakistan in future.

References

- Acar, M., & Temiz, H. (2017). Advertising effectiveness on financial performance of banking sector: Turkey case. *International Journal of Bank Marketing*, 35(4), 649–661.
- Adusei, M., Akomea, S. Y., & Poku, K. (2017). Board and management gender diversity and financial performance of microfinance institutions. *Cogent Business & Management*, 4(1), 1360030.
- Akansu, A., Cicon, J., Ferris, S. P., & Sun, Y. (2017). Firm performance in the face of fear: How ceo moods affect firm performance. *Journal of Behavioral Finance*, 18(4), 373–389.
- Alhadab, M., & Nguyen, T. (2018). Corporate diversification and accrual and real earnings management. *Review of Accounting and Finance*, 17(2), 198–214.
- Allam, B. S. (2018). The impact of board characteristics and ownership identity on agency costs and firm performance: Uk evidence. *Corporate Governance: The International Journal of Business in Society*, 18(6), 1147–1176.
- Artikis, G. P., Panigyrakis, G., Kapareliotis, I., & Ventoura, Z. (2009). Marketing and corporate profitability: the case of greek firms. *Managerial Finance*, 35(11), 909–917.
- Assenga, M. P., Aly, D., & Hussainey, K. (2018). The impact of board characteristics on the financial performance of tanzanian firms. *Corporate Governance: The International Journal of Business in Society*, 18(6), 1089–1106.
- Astami, E. W., Rusmin, R., Hartadi, B., & Evans, J. (2017). The role of audit quality and culture influence on earnings management in companies with excessive free cash flow. *International Journal of Accounting & Information Management*, 25(1), 21–42.
- Augusto, M., Pascoal, R., & Reis, P. (2020). Firms' performance and board size: A simultaneous approach in the european and american contexts. *Applied Economics Letters*, 27(13), 1039–1043.
- Beccalli, E., Bozzolan, S., Menini, A., & Molyneux, P. (2015). Earnings management, forecast guidance and the banking crisis. *The European Journal of Finance*, 21(3), 242–268.
- Borlea, S. N., Achim, M. V., & Mare, C. (2017). Board characteristics and firm performances in emerging economies. lessons from romania. *Economic research-Ekonomska istraživanja*, 30(1), 55–75.
- Brahma, S., Nwafor, C., & Boateng, A. (2020). Board gender diversity and firm performance: The uk evidence. *International Journal of Finance & Economics*, 16(1), 94–112.
- Candemir, A., & Zalluhoglu, A. E. (2011). The effect of marketing expenditures during financial crisis: the case of turkey. *Procedia-Social and Behavioral Sciences*, 24, 291–299.
- Chang, K., Lee, J., & Shim, H. (2019). Ceo duality and firm performance: Does economic policy uncertainty mediate the relation? *International Review of Finance*, 19(4), 877–891.
- Chen, M.-H., Tsai, H., & Lv, W. Q. (2018). The effects of institutional holdings and state ownership on hotel firm performance in china. *Journal of China Tourism Research*, 14(1), 20–41.

- Chouaibi, J., Zouari, G., & Khelifi, S. (2019). How does the real earnings management affect firms innovative? evidence from us firms. *International Journal of Law and Management*, 61(1), 151–169.
- Chouliaras, V., Gazepis, A., & Kargidis, T. (2015). Marketing's contribution to the profitability of greek enterprises during the economic crisis. *Procedia Economics and Finance*, 19, 217–225.
- Dang A, R., Houanti, L., Le, N. T., & Vu, M.-C. (2018). Does corporate governance influence firm performance? quantile regression evidence from a transactional economy. *Applied Economics Letters*, 25(14), 984–988.
- Duppatti, G., Rao, N. V., Matlani, N., Scrimgeour, F., & Patnaik, D. (2020). Gender diversity and firm performance: evidence from india and singapore. *Applied Economics*, 52(14), 1553–1565.
- Feng, Y., & Park, J. (2018). Taste and nutrition: the uses and effectiveness of different advertising claims in women's magazine food advertisements. *International Journal of Advertising*, 37(3), 482–501.
- Gaur, S. S., Bathula, H., & Singh, D. (2015). Ownership concentration, board characteristics and firm performance. *Management Decision*, 35(5), 911–931.
- Han, S., Nanda, V. K., & Silveri, S. (2016). Ceo power and firm performance under pressure. *Financial Management*, 45(2), 369–400.
- Hoang, L. T., Nguyen, C. C., & Hu, B. (2017). Ownership structure and firm performance improvement: Does it matter in the vietnamese stock market? *Economic Papers: A journal of applied economics and policy*, 36(4), 416–428.
- Huybrechts, J., Voordeckers, W., D'espallier, B., Lybaert, N., & Van Gils, A. (2016). The board's demography—firm performance relationship revisited: A bayesian approach. *Journal of Small Business Management*, 54(3), 992–1007.
- Jaisinghani, D., & Kanjilal, K. (2019). Marketing investments and firm performance in manufacturing sector: a panel threshold model for china. *Journal of the Asia Pacific Economy*, 24(1), 117–126.
- Joe, D. Y., Jung, D., & Oh, F. D. (2019). Owner-managers and firm performance during the asian and global financial crises: evidence from korea. *Applied Economics*, 51(6), 611–623.
- Kama, I., & Melumad, N. (2020). Camouflaged indicators of earnings management. *European Accounting Review*, 29(2), 361–382.
- Khan, A. W., & Subhan, Q. A. (2019). Impact of board diversity and audit on firm performance. *Cogent Business & Management*, 6(1), 1611719.
- Khan, M. T., Al-Jabri, Q. M., & Saif, N. (2019). Dynamic relationship between corporate board structure and firm performance: Evidence from malaysia. *International Journal of Finance & Economics*, 19(6), 1187-1203.

- Kim, T., Choi, H., Song, C., & Lee, M. J. (2019). Investigating the impact of advertising during economic shocks on firm performance in the hospitality industry. *Journal of Hospitality Marketing & Management*, 28(8), 1010–1031.
- Ko, C.-Y., Pan, H., Kuo, L.-C., & Ko, Y.-C. (2020). The association between non-executive compensation and firm performance. *Asia-Pacific Journal of Accounting & Economics*, 1–16.
- Kuo, K.-C., Lu, W.-M., & Dinh, T. N. (2020). Firm performance and ownership structure: Dynamic network data envelopment analysis approach. *Managerial and Decision Economics*, 41(4), 608–623.
- Lee, C.-H., & Chou, P.-I. (2020). Industry competition, earnings management and leader-follower effects. *Applied Economics*, 52(4), 388–399.
- Malik, M., Al Mamun, M., & Amin, A. (2019). Peer pressure, csr spending, and long-term financial performance. *Asia-Pacific Journal of Accounting & Economics*, 26(3), 241–260.
- Maravelaki, A., Doumpos, M., & Zopounidis, C. (2019). Corporate governance, women's participation and firm performance: empirical analysis using a non-parametric evaluation methodology. *INFOR: Information Systems and Operational Research*, 57(3), 394–410.
- Markovitch, D. G., Huang, D., & Ye, P. (2020). Marketing intensity and firm performance: Contrasting the insights based on actual marketing expenditure and its proxy. *Journal of Business Research*, 118, 223–239.
- Martín, C., & Herrero, B. (2018). Boards of directors: composition and effects on the performance of the firm. *Economic research-Ekonomska istraživanja*, 31(1), 1015–1041.
- Mayur, M., & Saravanan, P. (2017). Performance implications of board size, composition and activity: empirical evidence from the indian banking sector. *Corporate Governance: The international journal of business in society*, 17(3), 466–489.
- Merendino, A., & Melville, R. (2019). The board of directors and firm performance: empirical evidence from listed companies. *Corporate Governance: The international journal of business in society*, 19(3), 508–551.
- Meyer, H. M., & Ujah, N. U. (2017). Managed earnings the negative impact of marketer's discretionary advertising expenditures on firm performance. *Marketing Intelligence & Planning*, 35(2), 192–204.
- Parment, A., Kotler, P., & Armstrong, G. (2011). *Principles of marketing: Swedish edition*. Prentice-Hall.
- Peterson, R. A., & Jeong, J. (2010). Exploring the impact of advertising and r&d expenditures on corporate brand value and firm-level financial performance. *Journal of the academy of marketing science*, 38(6), 677–690.
- Rizwan, S. (2019). Corporate frauds, information asymmetry and stock market reaction. *Global Regional Review*, 4(2), 126–133.
- Rizwan, S., Ahmed, J., & Rasiah, R. (2018). The devil made me do it: Environmental factors leading to corporate financial fraud. *Journal of Managerial Sciences*, 11(3), 321–354.

- Shahwan, T. M. (2015). The effects of corporate governance on financial performance and financial distress: evidence from egypt. *Corporate Governance*, 15(5), 641–662.
- Shehata, N., Salhin, A., & El-Helaly, M. (2017). Board diversity and firm performance: evidence from the uk smes. *Applied Economics*, 49(48), 4817–4832.
- Sohail, S., Rasul, F., & Fatima, U. (2017). Is internal and external mechanism of governance enriching the performance of the banking sector of pakistan? *Corporate Governance: The International Journal of Business in Society*, 17(4), 629–642.
- Sridhar, S., Narayanan, S., & Srinivasan, R. (2014). Dynamic relationships among r&d, advertising, inventory and firm performance. *Journal of the Academy of Marketing Science*, 42(3), 277–290.
- Tanveer, M., Altaf, M., Mustafa, F., & Attiq, S. (2020). Evaluation of advertising effectiveness and advertising expenditures in banking: A time series analysis. *Paradigms*, 14(1), 34–39.
- Tsouknidis, D. A. (2019). The effect of institutional ownership on firm performance: the case of us-listed shipping companies. *Maritime Policy & Management*, 46(5), 509–528.
- Wang, H., Li, Q., & Chen, Y. (2015). Earnings management, business cycle, and product market competition. *China Journal of Accounting Studies*, 3(2), 136–157.
- Wang, H., Wu, J., Yang, Y., Li, R., & Liu, Y. (2019). Ownership concentration, identity and firm performance: Evidence from china's listed firms. *Emerging Markets Finance and Trade*, 55(15), 3653–3666.
- Withers, M. C., & Fitza, M. A. (2017). Do board chairs matter? the influence of board chairs on firm performance. *Strategic Management Journal*, 38(6), 1343–1355.
- Wu, T.-H., Ting, P. J. L., Lin, M.-C., & Chang, C.-C. (2020). Corporate ownership and firm performance: a mediating role of innovation efficiency. *Economics of Innovation and New Technology*, 1–28.
- Yamaguchi, T. (2020). Earnings management to achieve industry-average profitability in japan. *Asia-Pacific Journal of Accounting & Economics*, 1–30.
- Yeh, C. M. (2019). Ownership structure and firm performance of listed tourism firms. *International Journal of Tourism Research*, 21(2), 165–179.

Appendix-A

Table A: Description of variables

Variable	Description
Return on Asset (ROA)	ROA is a measure of firm's performance.
Earnings management linked advertising expenditures (EMLAE)	EMLAE represents discretionary advertising expenditures of a firm.
Board Size (BS)	BS represents total strength of directors in a firm.
Board Independence (BI)	BI represents fraction of independent directors in a firm.
CEO duality (DUAL)	DUAL represents a situation in which board's chairman also keeps the position of CEO.
Managerial ownership (MO)	MO represents proportion of shares owned by managers.
Institutional ownership (IO)	IO represents proportion of shares owned by institutions.
Leverage (LEV)	LEV represents debt ratio of a firm.
Firm size (SIZE)	SIZE represents size of a firm.

RESEARCH ARTICLE

Impact of Project Management Leadership and Knowledge Management on Job Engagement; with Mediating Role of Self Efficacy

Khurram Yazdani Qureshi *, Fuwad Bashir Awan, and Shazia Perveen

Faculty of Management Sciences, SZABIST, Islamabad

Received: October 25, 2020; Accepted: December 16, 2020.

Abstract: Project-based government as well as private sector organizations play a pivotal role in the progress and growth of any country. In case of Pakistan, project-based organizations offer lucrative salaries and perks to employees. In return, the performance of these organizations is not in accordance with the organizational contribution. As an initial finding, the deficiency was observed in employees' job engagement. In the theoretical framework, four variables were taken where job engagement was the DV, and project management leadership and knowledge management were the IVs. Self-efficacy was used as a mediator. Responses from the top and middle management employees of public and private sector organizations were collected for analysis. 166 responses were received against 320 floated questionnaire. SPSS and PLS Smart were used for analysis. The mediation test was performed through Structural Equation Modelling by PLS Smart 3. Results have shown that visible improvement can be made in job engagement of the employees as partial mediation has been observed by using self-efficacy as the mediator between Project Management Leadership, Knowledge Management Job Engagement. Knowledge Management and Project Management Leadership have positive impact on Self Efficacy and Job Engagement, partial mediation has been observed which illustrate acceptance of all hypotheses.

Keywords: Project Management Leadership, Knowledge Management, Self-Efficacy, Job Engagement

JEL Classification Code: M11, M50, D83

*Corresponding author: khurramyazdani5@gmail.com

1 Introduction

Public and private sector organizations contribute towards the economic health of any country through different projects. It is quite evident that actions and behaviors of project team members have a significant impact on the project and organizational success. It is also observed that in developed countries, performance of employees is superior because of the best practices compliant treatment in their compensation and other organizational practices. On the contrary, in developing countries, generally there is less emphasis on such practices, which usually results in lower employee satisfaction and higher employee turnover. The public sector of Pakistan is also facing these issues. Public health sector employees were generally dissatisfied with their jobs and resultantly exhibit poor performance, lower job engagement, which ultimately causes declined performance and poor reputation of health sector organizations in Pakistan (Khan et al., 2012).

As project management is inspiring yet stressful endeavour due to high emphasis on meeting the schedules, so the management and leadership have to go an extra mile to engage and keep the employees motivated towards the task. Based on empirical knowledge, the model was developed, and this research was planned, and the core problem area was job engagement. The primary concern and focus of this study were to identify some core variables which can play a vital role in improving job engagement. In this study, Project Management Leadership Knowledge Management were considered as independent variables, whereas Self-Efficacy has been used as a mediator. This research has focus on Job Engagement of the employees, working in project-based government as well as private sector organizations. The objective is to find out how it could be improved and which variables can play a leading role in improving the problem area. Furthermore, the emphasis of the study is on the projects administered by the government departments/organizations and project-based private sector organizations due to their impact on the economy.

1.1 Statement of the Problem

Empirical evidence shows that a low level of job engagement is a significant cause of many deviant workplace behaviours. If employees will be truly engaged in their jobs it will not only improve their performance but it will have a significant impact on overall organizational performance. In this regard, the current study is focusing on two organizational level variables that are Project Management Leadership, Knowledge Management, and an employee level mediating variable that is Self-Efficacy as predictor of employee Job Engagement. It means if proven to have significant impact on job engagement, all these variables might prove to be successful interventions to improve employees' job engagement.

1.2 Significance/Rationale of the Study

The study may contribute towards improving employee job engagement and increasing the probability of project success, so ultimately, the organizational performance. As in developing countries, many developmental projects are donor funded both in public as well as developmental sector organizations; therefore the study might help win their trust and confidence by meeting schedules and delivering the requisite milestones.

1.3 Research Objectives

This research has the below mentioned key research objectives:

- To explore the effect of project management leadership on job engagement.
- To identify the influence of knowledge management on job engagement.
- To explore the role of self-efficacy in the relationship between project management leadership and job engagement.
- To examine the role of self-efficacy between knowledge management and job engagement.

2 Literature Review

2.1 Project Management Leadership

The literature is quite evident about the critical role of project management leadership in the project's success; for instance, [Briner et al. \(1996\)](#) believe that the vision of leadership plays a pivotal role in bringing team members in a closer bond towards a commonly communicated set of objectives. [Baccarini \(1999\)](#) and [Davis \(1995\)](#) offered the Logical Framework Method (LFM) as an instrument for structuring the project and its achievements. This framework offers a precise linking mechanism among vision, objectives and project deliverables. By connecting the results of a project with a quantifiable vision, the dedication and commitment of the team members might improve significantly. [Tuman \(1986\)](#) and [Cleland \(1986\)](#) believed that the leader's clear vision, when properly articulated through an objective leadership is adequately linked with the employee level tasks, mostly lead towards more engaged employees with high levels of self efficacy.

H₁: Project management leadership has a significantly positive impact on job engagement.

H₃: Project management leadership has a significantly positive impact on self-efficacy.

2.2 Knowledge Management

Elaborated by [Gunjal \(2019\)](#) knowledge management is the procedure of gathering, managing and sharing employee's knowledge within the organisation. Knowledge is an inimitable and intangible asset and it can be used as a competitive advantage by organizations that use it in a well-organized manner ([Shahzad et al., 2020](#)). The focus on and investment in knowledge creation and knowledge management (KM) is a must for any organization to make progress ([Masa'deh et al., 2017](#)). [Maier \(2005\)](#) characterizes KM as "the management work focusing on general business execution and assessment of information management procedures to help deal with and use the knowledge inside and outside the organization keeping in mind the end goal to enhance managerial performance" (p. 433).

Knowledge is of two sorts: (1) implicit knowledge — knowledge that is supreme, underutilized, unspoken and dwelling in workers' mind; (2) explicit knowledge — knowledge that is distributable, simple to deal with, documentable and storable ([James & Lucardie, 2003](#)). Due to the diversity of the topic, there might not be a single and universal definition of the term knowledge management.. Knowledge management is a major contributor in making quality decisions about how and when to consider an alternative best suited to the situation ([Frey & Stutzer, 2000](#)). Likewise, knowledge management brings in advancement and improves profitability when leadership uses it systematically ([Shannak et al., 2012](#)).

Knowledge management is a purposeful arrangement of practices and procedures intended to streamline the utilization of knowledge. It is about enhancing the capacity and capability in the territory of knowledge generation, dissemination and utilization. Furthermore the knowledge management is the way toward gathering, sorting, and disseminating data by individual analysts/managers as well as teams of experts in any organization to facilitate the work engagement, workflow and other related decisions (Masa'deh et al., 2017). It supports the following hypothesis:

H₂: Knowledge management has a significantly positive impact on job engagement.

Knowledge management is also characterized as an arrangement of practice to locate the best mix of data and its interrelationship to facilitate complex tasks. It also takes into account the knowledge accumulated through the collective experience of the organizational members, which is ultimately a continuous source of organizational development and its performance improvement (Frey & Stutzer, 2000). Now let's briefly discuss the significant components of knowledge management.

Knowledge Acquisition

Turulja & Bajgorić (2020) research work show the indirect impact of knowledge acquisition and knowledge application on companies business enactment through process and product novelty. As defined by Kim et al. (2020) to elaborate the relations among innovation and environment, this research work aims to inspect the influence of environment on innovation through external knowledge acquisition. Pacharapha & Ractham (2012) described knowledge acquisition as the methodology of collecting, arranging, understanding and different interlinking components of a subject to create a knowledge base. The capacity of the knowledge acquirer and the availability of data (Gupta et al., 2000) and the purpose and cost of data must be supplemented with a knowledge-sharing environment as the main driving factors behind knowledge acquisition (Gupta et al., 2000).

Knowledge Storage

Knowledge management is a combination of tools that link the application of knowledge to business systems. In this regard, knowledge management is additionally characterized as a system that encourages business to conceive, select, store and hand over necessary data which is accumulated through collective organizational experience.

Knowledge Transfer

Knowledge transfer is all about selecting the most appropriate set of knowledge to the most related audience for their support in their work and to provide them with new insights. The critical components of the knowledge transfer are the quality of knowledge, the transferring process and the complete and meaningful transfer of knowledge (Cummings, 2002). Like information organization, information transfer expects to arrange, make, get, or share information and affirm its availability for future recipients.

Knowledge Application

Knowledge application procedures are those processes arranged toward the real utilization of knowledge (Gold et al., 2001). Davenport et al. (1998) contended that the proper use of knowledge has helped organizations enhance their productivity and lessen costs. Over the most recent two decades, organizations have seriously been looking for sources of true competitive advantage, for example, differentiation, cost leadership and many more, yet the knowledge management (KM) has proved to be a very unique and sustainable source of competitive advantage (Oluikpe, 2012). Numerous knowledge management experts have a consensus on the fact that in today's knowledge economy, knowledge management is a critical source of getting a competitive advantage (Teece, 1982). The business entities are

more concerned about building knowledge resources for their competitiveness. Knowledge management is not an alternative anymore but instead a significant need for individuals as well as organizations to exist competitively (Singh & Kant, 2008).

H₄: Knowledge management has a significantly positive impact on self-efficacy.

2.3 Self-Efficacy

Reychav et al. (2019) during defining the 'technology identity' and 'technology self-efficacy' research work, it is hypothesized that perceived mobile technology identity openly affects self report reliability, and professed self-efficacy moderates the relationship between the two. Self-efficacy is described as the trust that people have about their abilities to execute required activities and control them adequately (Bandura, n.d.). It is suggested that self-efficacy relates to the execution, since it impacts both the activities people perform and how much effort they exert while performing them (Bandura, n.d.; Yeo & Neal, 2006). Moreover, people who have a higher self-efficacy will sustain longer in their endeavours, and they take their chances until the completion of the task. This critical point concerning self-control is very critical for the task execution. Self-efficacy shows expected results when individuals were given a specific goal and proper feedback from leadership (Cervone & Wood, 1995; Gist & Mitchell, 1992).

According to the Social Cognitive Theory of Bandura (n.d.), self-efficacy is portrayed as the trust in one's abilities to deal with and execute the activities required to gain success (Bandura, n.d.). This confidence in one's capabilities might be an outcome of past productive experiences, vicarious learning, acquired knowledge and physiological as well as mental states (Bandura, n.d.), like how we got motivated, how we feel, what we think, and what we do (Bandura, 2001; Martín, 2000). Theoretical and observational research shows that self-efficacy is a critical factor in work engagement. There is empirical evidence that low levels of self-efficacy results in stress, absenteeism, job satisfaction, turnover, low commitment (Jex & Bliese, 1999), restlessness, hopelessness (Beas & Salanova, 2006) and burnout (Salanova et al., 2001, 2002, 2000). This supports the following hypothesis:

H₅: Self-efficacy has a significantly positive impact on job engagement.

2.4 Job Engagement

Oluwatayo & Adetoro (2020), the concept of job engagement is generally foreseen by the human resource practices and employee's individual traits. Result show that perceptions of job insecurity has negative impact. It was also observed that, employee's job engagement can reduce turnover intent. Job engagement of workforce completely mediate the relations among turnover intent and perceptions of job insecurity, on the other end job insecurity produced by COVID-19 has a larger impact. Job engagement (JE) is a moderately new idea in academic research that is attracting much attention due to the comprehensiveness and outcomes of the concept. The principal meaning of JE is a positive attitude, satisfaction, passion, energy, high vigour, commitment, importance, excitement, motivation and pride, related to their job as well as an organization. The worker put the discretionary effort in their work, relate themselves with the job, and feels that time passes rapidly (Bakker & Demerouti, 2008; Chughtai & Buckley, 2011).

Job engagement is also defined as the physical, intellectual, and enthusiastic vitality and commitment that the workers put as resources into their work (Kahn, 1990; Rich et al.,

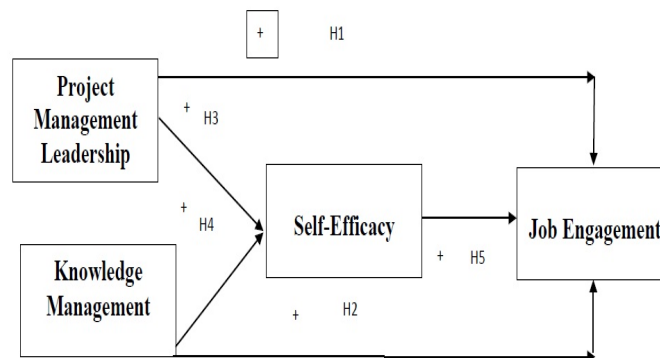


Figure 1: Research Framework

2010). The main concern of the person with high job engagement is the higher performance while fulfilling the tasks assigned by the organization and ultimately increasing organizational effectiveness (Eagly & Chaiken, 1993; Judge et al., 2001). Employee job engagement has received much attention over the last years, and it has been recognized as the way to an organization's growth and prosperity. As per Schaufeli & Salanova (2007), engagement is "fundamental" for today's employees. employees fight against multiple task-related challenges if they are correctly delegated and engaged in their jobs.

In any case, although the persisting search has shown that job engagement is identified with worker task results, many managerial and individual antecedents that impact employees' job engagement are still, to a great extent, obscure. Specifically, less hypothetical clarification and experimental work have been done at the organizational level antecedents of employee job engagement (Rich et al., 2010; Saks, 2006). The relationships mentioned above among all the IVs and self-efficacy and further the relationship of self efficacy with job engagement supports the mediating role of self efficacy.

2.5 Theoretical/Conceptual Framework

In this research study, job engagement focuses as a dependent variable, whereas project management leadership and knowledge management are the IVs. Self-efficacy mediates the association between project management leadership (IV) and job engagement (DV) and the impact of the mediating role of Self-efficacy between knowledge management (IV) and job engagement (DV). **Independent variables:** Project management leadership and Knowledge management

Mediator: Self-efficacy

Dependent variable: Job engagement

2.6 Hypothesis Development

For justifying the research framework and literature review, research hypotheses are developed, which support the theoretical framework. The following hypothesis has been created to justify the research study:

H_1 : Project management leadership has a significantly positive impact on job engagement.

*H*₂: Knowledge management has a significantly positive impact on job engagement.

*H*₃: Project management leadership has a significantly positive impact on self-efficacy.

*H*₄: Knowledge management has a significantly positive impact on self-efficacy.

*H*₅: Self-efficacy has a significantly positive impact on job engagement.

*H*₆: Self-efficacy mediates the relationship between project management leadership and job engagement.

*H*₇: Self-efficacy mediates the relationship between knowledge management and job engagement.

3 Research Methodology

Research methodology facilitates the researcher by providing a descriptive mechanism of the research study. It involves the following given information.

3.1 Sample Selection

The sample size was 320 employees, which involve top middle management of private companies (dealing with projects) and top middle management government officers working in different government organizations (which are dealing with projects) located in Rawalpindi/Islamabad. The calculation of sample size selection has opted from [Hair Jr et al. \(2016\)](#) number of variables \times 20, then double it (in Pakistan response rate is 49%, that is why again double your results to finalize the sample size of your study $4 \times 20=80$ after doubling it will become 160 and after again doubling it will be 320).

3.2 Population Frame

Top and middle management government officers working in different government departments (which are dealing with projects) and top middle management staff of private companies/organizations (dealing with projects) would be the population frame of the research study.

3.3 Type of Study

The type for the current research study was causal research design' as our model depicts the cause and effect scenario among the project management leadership, knowledge management (IVs), and job engagement (DV) with a mediating role of self-efficacy.

3.4 Sampling Technique

Purposive sampling technique was used along with random sampling, as the questionnaires were shared with HR departments and administration offices of the organizations to get them filled from the project managers randomly.

3.5 Research Instruments

The five likert scales ([Likert, 1967](#)) was used. Four variables were measured using the research instruments adopted from previous studies without any modifications for measur-

ing the project management leadership instrument developed by [Norrie & Walker \(2004\)](#). For measuring the knowledge management instrument was developed by [Liebowitz & Megbolugbe \(2003\)](#). Self-efficacy instrument was developed by [Dorfman & Howell \(1988\)](#). The job engagement instrument was developed by [Rich et al. \(2010\)](#).

3.6 Data Collection Procedures

Data were collected from the selected respondents through google docs and printed research instruments in the form of the questionnaire, 5-points likert-scale was used to collect answers.

3.7 Data Analysis Techniques and Tools

Data was received through google docs, and was analysed by using the structural equation modelling technique through SmartPLS 3. SPSS was used to prepare data sheet and for demographic analysis.

4 Findings and Data Analysis

4.1 Descriptive Statistics and Analysis

The researcher used SPSS software for data entry and demographic analysis, while structural equation modeling has been performed using SmartPLS 3. The measurement model was executed in SmartPLS to check reliability, correlation, average variance, R square, moderation, and mediation. The researcher collected data from 166 respondents, out of which 90 were male (54.2%) and 76 were female (45.8%). Table 1 below shows the demographic analysis for gender and male respondents were high in number.

Table 1: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	90	54.2	54.2	54.2
	Female	76	45.8	45.8	100
	Total	166	100	100	

Table 2 shows responses regarding the age of the respondents. This demographic analysis shows that 31.9% of respondents were from the age group of 20-30 years, 50% were from the age group 31-40 years, showed the highest number where people in this age cohort worked in project-based organizations. The number of people in last age group, which was above 40 years, were 18.1%.

The researcher explains the education level of respondents in the table 3 mentioned above. According to the below table, 31 respondents have a Bachelor's degree (18.7%), 81 respondents have a Master's degree (48.8%) and 54 respondents have a MPhil/Ph.D degree.(32.5%). We can see from the above table that the highest respondents had a Master's degree.

Table 2: Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30 Years	53	31.9	31.9	31.9
	31-40 Years	83	50	50	81.9
	Above 40 Years	30	18.1	18.1	100
	Total	166	100	100	

Table 3: Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelors	31	18.7	18.7	18.7
	Masters	81	48.8	48.8	67.5
	M. Phil./PhD	54	32.5	32.5	100
	Total	166	100	100	

Table 4 explains the the distribution of organizations as data was collected from both private and public organizations. There were 60.2% respondents from private sector (project based organizations) and 39.8% respondents from public sector (project based organizations). Private sector respondents were higher in number who participated in this survey.

Table 4: Organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Private	100	60.2	60.2	60.2
	Public	66	39.8	39.8	100
	Total	166	100	100	

4.2 Analysis of Measurement Model

Findings from the measurement model state that R-square of self-efficacy, which is 31.1%, it means that 31.1% of variation in self efficacy is explained by project management leadership and knowledge management. R-square of job engagement is 40.4% which indicates that 40.4% of variation in job engagement is explained by self-efficacy, project management leadership and knowledge management.

Beta co-efficient path

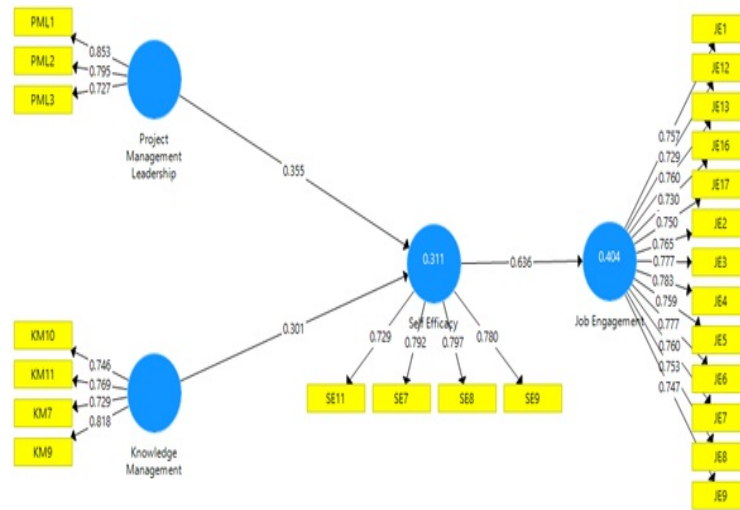


Figure 2: Measurement Model (Project Management Leadership, Self Efficacy, and Job Engagement)

1. Project management leadership has reflected a positive association with self-efficacy.
2. Knowledge management has shown a positive relationship with self-efficacy.
3. Self-efficacy has a positive relationship with job engagement.
4. Project management leadership has a positive relationship with job engagement.

All factor loadings indicate that data is significant because their values are greater than 0.5 as mentioned in figure 2. PML 1 has the highest value, and it means that it has the most contribution to explain project management leadership. KM 3 has the highest value, and it means that it has the most contribution to explain knowledge management. SE 8 has the highest value, and it means that it has the most contribution to explain self-efficacy. JE 4 has the highest value, and it means that it has the most contribution to explain job engagement.

Table 5: Construct Reliability and Validity before Mediation

	α	Composite Reliability	AVE
Project Management Leadership	0.73	0.829	0.55
Knowledge Management	0.767	0.85	0.587
Self-Efficacy	0.815	0.864	0.515
Job Engagement	0.938	0.946	0.574

Table 5 shows the construct reliability and validity before performing the mediation effect. We can see from table 5 column 2 explains about Cronbach’s alpha, column 3 explains about composite reliability while the last column shows average variance extracted. Cronbach’s alpha is in an acceptable range, which should be more than 0.60, and we can see for all variables Cronbach’s alpha is above 0.60, which means all instruments are reliable and consistent. Job engagement has the highest Cronbach’s alpha value, which is 0.938. Project

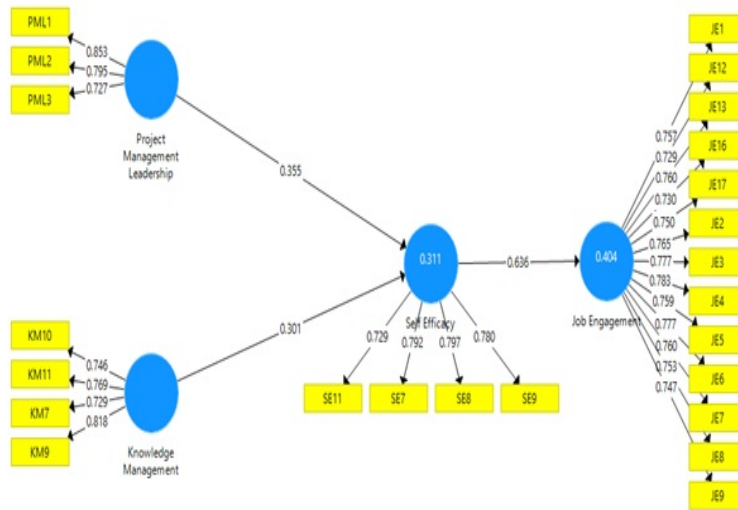


Figure 3: Measurement Model After Boot Strapping for Mediation

management leadership has the lowest Cronbach’s alpha value, which is 0.730. Our analysis shows that the composite reliability of project management leadership is 0.829. For self-efficacy, it is 0.864, knowledge management is having 0.850 and for job engagement, 0.946, which means all are acceptable, which should be above 0.70. The last column shows the average variance extracted, which shows that all values are greater than 0.5, which means our measurement model is valid and reliable. So by looking at the table mentioned above, we can say reliability and validity exist and confirm.

As mentioned below, it can be seen from the table that every variable is different from the other variables by having diagonal values higher than vertical and horizontal values. It can also be observed that these values are higher than the values of average variance, which means that there is no issue of multicollinearity in the data collected from the respondents.

Table 6: Discriminant Validity before Mediation

	AVE	JE	KM	PML	SE
Job Engagement	0.55	0.758			
Knowledge Management	0.587	0.5	0.766		
Project Management Leadership	0.515	0.482	0.441	0.794	
Self-Efficacy	0.574	0.636	0.458	0.487	0.775

The correlation table helps us to gauge the association among the variables. Correlation value ranges between -1 to +1, which is also its acceptable range. A positive value indicates a strong positive relationship between the variables, and negative values imply a negative correlation among the under study variables. As per findings, all variables are possessing positive values within the acceptable range.

Table 7: Correlation Table before Mediation

	JE	KM	PML	SE
Job Engagement	1			
Knowledge Management	0.5	1		
Project Management Leadership	0.482	0.441	1	
Self-Efficacy	0.636	0.458	0.487	1

The R square (coefficient of determination) guides us to explain the variance in DV produced by the IV. These values of R square were calculated before mediation by using SmartPLS 3. It is evident from the results mentioned above that self-efficacy explains the variance of 40.4% of job engagement.

Table 8: R Square

	Before Mediation	
	R Square	R Square Adjusted
Job Engagement	0.404	0.401
Self-Efficacy	0.311	0.302

Knowledge management → Job engagement value of T-stats is significant because it is larger than 1.96, P-value is significant and having a 100% confidence level. Knowledge management → Job engagement value of T-stats is significant because it is larger than 1.96, P-value is significant and having a 100% confidence level. Project management leadership → Job engagement value of T-stats is significant because it is larger than 1.96, P-value is significant and having a 100% confidence level. Project management leadership → Job engagement value of T-stats is significant because it is larger than 1.96, P-value is significant and 100% confidence level. Self-efficacy → Job engagement value of T-stats is significant because it is larger than 1.96, P-value is significant and 100% confidence level. The below-mentioned factual position implies that the mediation effect's hypothesis is accepted with significant data collected from project-based organizations. These findings go along with the findings of Tuman (1986) and Cleland (1986) who believed that the leader's clear vision, once properly expressed and adequately linked with the employee level tasks, generally lead towards more engaged employees with high levels of self-efficacy.

Table 9: Total Effects

	O	M	STDEV	O/STDEV	P Values	Status
Knowledge Management -> Job Engagement	0.357	0.363	0.094	3.801	0	Supported
Knowledge Management -> Self Efficacy	0.297	0.3	0.077	3.859	0	Supported
Project Management Leadership -> Job Engagement	0.324	0.331	0.095	3.426	0.001	Supported
Project Management Leadership -> Self Efficacy	0.356	0.366	0.082	4.364	0	Supported
Self-Efficacy -> Job Engagement	0.455	0.451	0.077	5.913	0	Supported

Note: O=Original Sample; M=Sample Mean; STDEV=Standard Deviation; |O/STDEV|= T-Stat

Table 10 shows the mediation analysis of direct and indirect effects after bootstrapping mediation was calculated. VAF was calculated after direct and indirect effects, which shows a value of 74.3%. This value is less than 80%, showing partial mediation on the data collected from project-based public and private sector organizations. This also relates to the findings of [Schaufeli & Salanova \(2007\)](#), easy engagement is "fundamental" for today's employees, given the various challenges they face and they fight against multiple task-related challenges if they are correctly delegated and engaged in their jobs. As per research finding when tests were run on data received (from public/private project-based organization) regarding mediation, it was found that partial mediation existed when we evaluated the impact of project management leadership, knowledge management on job engagement with the mediating role of self-efficacy, which support the underlying hypothesis as well.

Table 10: Mediation Analysis

Path	Coefficients	Value	VAF	Status
Direct	4.87	14.136/19.006=	.743	
Indirect	14.136	74.3%, Which is < 80% Means Partial Mediation		Supported
Total Effect	19.006			

5 Conclusion and Discussion

The performance of government offices, dealing with projects and project-based organizations working in the private sector, has been declined in the last decade. The concept arises to measure the possible reasons for that decline. Among many other factors, job engagement seems to be the most dominating problem area which needs to be addressed. The researcher has tried to contribute value addition to the organizations and practitioners. As the variables under study depict that job engagement among the employees can be improved by focusing on the aspects of project management leadership, knowledge management, and specially self-efficacy. The research model was formulated by reviewing the literature on the variables under study and their logical and historical relationships. This research's main objective was to test the Pakistan project-based private and public sector organizations' theoretical model.

To get the most relevant respondents' appropriate responses, the researcher tried to approach renowned organizations and departments', employees. Three hundred and twenty questionnaires were floated in total, out of which 100 questionnaires were floated through google doc and 220 in hard form through personal visits. One hundred and sixty-six responses were received/recorded, 20 through google docs, and 146 through questionnaire. The analysis was conducted in three phases by using SPSS and structural equation modelling through SmartPLS 3. All the hypotheses were found acceptable. Based on results, researchers have concluded that improvement could be made in job engagement of employees working in public/private project-based organizations/departments by focusing on project management leadership, knowledge management, and self-efficacy. This improvement is more required in public organizations as their employees lack of job engagement due to their job securities and salaries/perks.

Results show that research model has partial mediations, which means that self-efficacy partially mediates the relationship between the independent variables and the dependent variable. Self-efficacy is one knowledge area of psychological capital. After conducting this research, it is added that it may be beneficial to consider the impact of other knowledge areas of psychological capital, which are hope, optimism and resilience, as a future recommendation. It is also expected that these knowledge areas will also improve the problem area.

References

- Baccarini, D. (1999). The logical framework method for defining project success. *Project management journal*, 30(4), 25–32.
- Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career development international*, 13(3), 209–223.
- Bandura, A. (n.d.). Self-efficacy: The exercise of control. New York: WH Free Mall.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual review of psychology*, 52(1), 1–26.
- Beas, M. I., & Salanova, M. (2006). Self-efficacy beliefs, computer training and psychological well-being among information and communication technology workers. *Computers in Human Behavior*, 22(6), 1043–1058.
- Briner, W., Hastings, C., & Geddes, M. (1996). Project leadership [book review]. *IEE Review*, 42(5), 218–230.
- Cervone, D., & Wood, R. (1995). Goals, feedback, and the differential influence of self-regulatory processes on cognitively complex performance. *Cognitive Therapy and Research*, 19(5), 519–545.
- Chughtai, A. A., & Buckley, F. (2011). Work engagement. *Career Development International*, 16(7), 684–705.
- Cleland, A. (1986). Computer subroutines for rapid evaluation of refrigerant thermodynamic properties. *International journal of refrigeration*, 9(6), 346–351.
- Davenport, T. H., Prusak, L., et al. (1998). *Working knowledge: How organizations manage what they know*. Harvard Business Press.
- Davis, L. J. (1995). *Enforcing normalcy: Disability, deafness, and the body*. Verso.
- Dorfman, P., & Howell, J. (1988). Dimensions of national culture and effective leadership patterns: Hofstede revisited. *Advances in international comparative management*, 3: 127–150. Earley, P. C. (1994). Self or group? Cultural effects of training on self-efficacy and performance. *Administrative Science Quarterly*, 39(1), 89–117.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Harcourt Brace Jovanovich College Publishers.

- Frey, B. S., & Stutzer, A. (2000). Happiness, economy and institutions. *The Economic Journal*, 110(466), 918–938.
- Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management review*, 17(2), 183–211.
- Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of management information systems*, 18(1), 185–214.
- Gunjal, B. (2019). Knowledge management: Why do we need it for corporates. *Malaysian Journal of Library & Information Science (ISSN: 1394-6234)*.
- Gupta, B., Iyer, L. S., & Aronson, J. E. (2000). Knowledge management: practices and challenges. *Industrial management & data systems*, 100(1), 17–21.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (pls-sem)*. Sage publications.
- Jex, S. M., & Bliese, P. D. (1999). Efficacy beliefs as a moderator of the impact of work-related stressors: a multilevel study. *Journal of applied psychology*, 84(3), 349.
- Jimes, C., & Lucardie, L. (2003). Reconsidering the tacit-explicit distinction—a move toward functional (tacit) knowledge management. *Electronic Journal of Knowledge Management*, 1(1), 23–32.
- Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychological bulletin*, 127(3), 376.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of management journal*, 33(4), 692–724.
- Khan, O. A., Iqbal, M., & Waseem, A. (2012). Patients experience and satisfaction with healthcare at pakistan railways hospital, rawalpindi. *Ann. Pak. Inst. Med. Sci*, 8(2), 122–124.
- Kim, K., Li, F., Yoo, J. W., & Kim, C. Y. (2020). The relationships among environments, external knowledge acquisition, and innovation. *Sustainability*, 12(14), 5541.
- Liebowitz, J., & Megbolugbe, I. (2003). A set of frameworks to aid the project manager in conceptualizing and implementing knowledge management initiatives. *international Journal of project management*, 21(3), 189–198.
- Likert, R. (1967). *The human organization: its management and values*. McGraw-Hill.
- Maier, R. (2005). Modeling knowledge work for the design of knowledge infrastructures. *J. UCS*, 11(4), 429–451.
- Martín, E. G. (2000). Autoeficacia en el mundo laboral. *Apuntes de psicología*, 18(1), 9–38.
- Masa’deh, E. Y., Mufleh, M., & Alrowwad, A. (2017). The impact of erp system’s usability on enterprise resource planning project implementation success via the mediating role of user satisfaction. , 9(3), 49–71.

- Norrie, J., & Walker, D. H. (2004). A balanced scorecard approach to project management leadership. *Project management journal*, 35(4), 47–56.
- Oluikpe, P. (2012). Developing a corporate knowledge management strategy. *Journal of Knowledge Management*, 16(6), 862–878.
- Oluwatayo, A. A., & Adetoro, O. (2020). Influence of employee attributes, work context and human resource management practices on employee job engagement. *Global Journal of Flexible Systems Management*, 21(4), 295–308.
- Pacharapha, T., & Ractham, V. V. (2012). Knowledge acquisition: the roles of perceived value of knowledge content and source. *Journal of knowledge management*, 16(5), 724–739.
- Reychav, I., Beeri, R., Balapour, A., Raban, D. R., Sabherwal, R., & Azuri, J. (2019). How reliable are self-assessments using mobile technology in healthcare? the effects of technology identity and self-efficacy. *Computers in Human Behavior*, 91, 52–61.
- Rich, B. L., Lepine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of management journal*, 53(3), 617–635.
- Saks, A. M. (2006). Antecedents and consequences of employee engagement. *Journal of managerial psychology*, 21(7), 600–619.
- Salanova, M., Grau, R., & Schaufeli, S. (2001). Exposición a las tecnologías de la información, burnout y engagement: el. *Revista de Psicología Social Aplicada*, 11(1), 2001.
- Salanova, M., Peiró, J. M., & Schaufeli, W. B. (2002). Self-efficacy specificity and burnout among information technology workers: An extension of the job demand-control model. *European Journal of work and organizational psychology*, 11(1), 1–25.
- Salanova, M., Schaufeli, W. B., Llorens Gumbau, S., Silla, P., Grau Gumbau, R. M., et al. (2000). Desde el burnout al engagement: ¿una nueva perspectiva? *Journal of work and organizational psychology*, 16(2), 117–134.
- Schaufeli, W., & Salanova, M. (2007). Work engagement. *Managing social and ethical issues in organizations*, 135, 177.
- Shahzad, M., Qu, Y., Ur Rehman, S., Zafar, A. U., Ding, X., & Abbas, J. (2020). Impact of knowledge absorptive capacity on corporate sustainability with mediating role of csr: analysis from the asian context. *Journal of Environmental Planning and Management*, 63(2), 148–174.
- Shannak, R., Masa'deh, R., Al-Zu'bi, Z., Obeidat, B., Alshurideh, M., & Altamony, H. (2012). A theoretical perspective on the relationship between knowledge management systems, customer knowledge management, and firm competitive advantage. *European Journal of Social Sciences*, 32(4), 520–532.
- Singh, M., & Kant, R. (2008). Knowledge management barriers: An interpretive structural modeling approach. *International Journal of Management Science and Engineering Management*, 3(2), 141–150.
- Teece, D. J. (1982). Towards an economic theory of the multiproduct firm. *Journal of Economic Behavior & Organization*, 3(1), 39–63.

- Tuman, J. (1986). Success modeling: A technique for building a winning project team. In *Proceedings of project management institute* (pp. 29–34).
- Turulja, L., & Bajgorić, N. (2020). Knowledge acquisition, knowledge application, and innovation towards the ability to adapt to change. In *Disruptive technology: Concepts, methodologies, tools, and applications* (pp. 1019–1036). IGI Global.
- Yeo, G. B., & Neal, A. (2006). An examination of the dynamic relationship between self-efficacy and performance across levels of analysis and levels of specificity. *Journal of Applied Psychology*, 91(5), 1088.

RESEARCH ARTICLE

Brand Equity and Its Impact on Customer Purchase Intention: Empirical Evidence of the Telecommunication Sector of Sargodha

Tayyab Sultan¹, Muhammad Junaid Shahid Hasni ^{*2}, and Ali Raza³

¹Lahore Business School, University of Lahore, Sargodha Campus, Sargodha, Pakistan

²Department of Economics and Management, University of Trento, Trento, Italy

³Quaid-i-Azam School of Management Sciences, Quaid-i-Azam University, Islamabad, Pakistan

Received: October 27, 2020; Accepted: December 4, 2020.

Abstract: The paper aims to analyse the impact of brand equity on customers' purchase intention in the Sargodha telecommunication market. Furthermore, it measures brand equity through different dimensions like brand loyalty, brand awareness, perceived quality and brand association. It is quantitative research with an adopted questionnaire to record customer feedback with five-point Likert scale. SPSS is used to examine the data. The analytical tests were performed, e.g., descriptive statistics, correlation analysis and regression analysis. It has a fourfold result. It found a significant positive effect of brand loyalty on customer purchase intention. The second hypothesis established that brand awareness has a significant positive impact on customer purchase intention. Moreover, perceived quality has also affected customer purchase intention in a significantly positive way. Lastly, the brand association has not proven a positive and significant effect on customers' purchase intention. When the customer is more attached to some brand, they can purchase that brand. Still, in this study, the brand association has not found a significant positive effect of brand association on customer purchase intention. All the results are consistent with previous studies. According to the outcomes, the telecom companies should invest and focus on the brand equity elements through promotional campaigns. It would be more effective in terms of an increase in sales and customer size. The paper developed a conceptual model of brand equity effect on customer purchase intention in Sargodha's telecom market.

Keywords: Brand Equity, Customer Purchase Intention, Brand Association, Brand Awareness, Perceived Quality, Brand Loyalty, Telecom Sector

JEL Classification Code: M31, O30, L96

*Corresponding author: muhammad.hasni@unitn.it

1 Introduction

In the present era, brand is an essential factor for increasing the progress of the company. The buying behavior of people can be changed with brand equity. A company's brand name can help customers purchase the products and services it offers. In recent times, people are more conscious of the different brands that are available in the market. To understand their customers' needs, companies can create a strong brand image to target consumers. A well-known brand image in customers' minds can help companies compete in different market conditions, and customers easily choose their products according to a related brand. Brand awareness is an essential factor in a customer's purchase decision. Brand image and brand awareness are crucial tools that can influence the purchase decision because they help build and maintain customer loyalty to different brands. When customers are more aware of a brand, a company can create a better market image and generate more customer loyalty; due to brand awareness, a customer can easily purchase products associated with its brand. Higher brand awareness can create a strong market image for its brand (Chi & Yeh, 2009; Mishra et al., 2020).

Companies can use two different factors to strengthen their brand: brand name and brand logo, to create a reference point in consumers' minds. Through these, customers can easily recognize a product associated with a specific brand. Brand equity is an essential tool that helps customers focus their attention on development, which can impact their buying decision (Saroaha & Diwan, 2020). Customers need a brand they already have more information about because many brands exist in the market, and customers have information about them. The first time customers make a purchase decision, brand equity is a significant factor. However, other factors, such as their family and friends' opinion, can also affect customers' purchasing decisions.

In Pakistan's telecommunication sector, different companies can use different ways to force their customers to purchase their brand. They can influence their customers through extensive advertising campaigns and capture a large share of the market. To build a good reputation in the market among potential and current customers, a company needs to offer products with more unique and better features than its competitors. If telecommunication companies do not follow fair practices, they will not build their customer base. Telecomm companies can create a hypothetical world in which they offer packages so customers can compare them to their competitors' packages, rather than to satisfy customers through remarkable advertisements to target their intended market. To create a positive image of the services being offered, a company must generate brand equity. When a company makes a positive image, customers become more brand conscious, which will impact their intention to purchase its products and services. The increasing competition in the mobile telecommunications sector can also affect the brand equity of different telecommunication companies. For example, the merger of two companies, Warid and Mobilink, can also create a problem in the market for their competitors because they must adopt new strategies to increase their brand equity. In these situations, companies can use different types of methods to maximize their brand equity.

This study attempted to answer the following research questions:

- RQ1: Does the customer purchase intention affect brand loyalty in the telecommunication sector?
- RQ2: Does customer purchase intention affect by brand awareness in the telecommunication sector?
- RQ3: Does customer purchase intention affect by perceived quality in the telecommunication sector?
- RQ4: Does customer purchase intention affect by the brand association in the telecommunication sector?

This study has the following objectives:

1. To identify how brand equity affects the purchase intention of customers in the telecommunications sector.
2. To examine how brand loyalty affects a customer's purchase intention.

3. To evaluate how brand awareness affects a customer's purchase intention.
4. measure how perceived quality affects a customer's purchase intention.
5. To examine the effect of brand association on a customer's purchase intention.

2 Literature Review

2.1 Brand Equity

Keller (1993) explains that brand equity represents a situation in which consumers know about different brands. Due to the brands' familiarity, the customer reminds the brand when they have unique and strong associations. Winters (1991) said that brand equity is with the associations and perception of customers with a particular brand name that will add value to a product. Kotler (2003) noted that Brand assets are the added value of products and services that may reflect the consumer's perception of the brand and reflect the price, market share and profitability. Aaker & Equity (1991) stated that brand equity requires a set of brand-related assets and liabilities, their names and symbols. The value that the product or service, offers to the company, would increase or decrease.

2.2 Customer Purchase Intention

Porter (1974) explains that they can elaborate that customers whose choices to purchase a focused brand are not due to the brand attitude. Still, the customers also focused that brand name leads towards another brand in the same consideration set. Engel et al. (1995) present the model recognized for customers' purchasing decisions. He can divide the five steps model of consumer purchase decision: (1) problem recognition, (2) information search, (3) alternative evaluation, (4) purchase decision and (5) post-purchase behavior. According to Keller (2001), when consumers make their purchase decisions, their behavior is critical when considering and evaluating the products. The two things will influence customers' purchase intention: their attitudes and the unpredictable situation (Kotler, 2003). Customers' attitudes include their personal preferences towards the product, and unexpected situations show that they will change their purchasing behaviour in different situations.

2.3 Brand Loyalty

According to Hayes (2008), any brand's profitable growth is driven by the customers. When the commitment of the customers increases the profit of the company also increases. Rashidi (2013) pointed out that brand equity is the customers' loyalty has been considered from various aspects. The aspects are loyalty with the brand, commitment to products, services and other different similar items are included as such expects. According to Kotler & Keller (2006), the increase in the brands' percentage of loyal customers becomes more profitable. Brand loyalty refers to a potential repurchase commitment where customers pledge that they will not switch the brand in various circumstances and buy the brand they are loyal to on an ongoing basis (Oliver, 1999).

2.4 Perceived Quality

Consumers are always searching for the value that is ideal for them. When the product's quality is high, the customers extend the business domain and company has a strong position in the market, which can help improve the purchase of customers and loyalty (Myers, 2003). Aaker & Equity (1991) indicated that the customer's perceived quality shows the customer about their salient features that

are different from others and become a potent and selective brand in the consumer's mind. Perceived quality and brand equity are positively related to each other (Severi & Ling, 2013). Kan (2002) said that the quality objective is that consumers will use their knowledge and experience while making a purchase decision of product, a consumer evaluates the overall product function, benefit, technology and their reliability. The perceived quality is a critical element in customer decision-making. The consumer compares their alternative products' quality concerning each items price in the relevant category (Yee et al., 2011).

2.5 Brand Awareness

Brand awareness means that the customer's recall and recognition ability about the brand in different situations (Aaker & Equity, 1991). According to Hoeffler & Keller (2002), brand awareness can be seen through their depth and width. Depth means that the recall process of the customer and after recall how to identify brand quickly and the width shows the situation when the customer purchase a product, at once the brand name of that product comes to their mind. When both the brand depth and brand-width comes into the customer's mind, they will buy a specific product of the brand. So this is the way through which the brand awareness of the customer is high. Brand awareness is an essential factor for customers' purchase decisions because customers can purchase those products they have more knowledge and are familiar with (Keller, 1993; Macdonald & Sharp, 2000). People can show the product's goodwill among different individuals when they know about its features (Gustafson & Chabot, 2007; Shah et al., 2019).

2.6 Brand Association

Keller (1993) stated that the brand association consists of three elements; attributes, benefit and brand attitude that helps the customer have different responses. Krishnan (1996) considered brand association to be a general term representing a link between two nodes, which suggests brand association in customers' minds. Aaker & Equity (1991) said that brand associations can provide consumers with value through consumer optimism and attitudes by providing consumers with choice and branding.

2.7 Hypothesis Development

This study has verified the relationship between brand equity and customer purchase intention. The hypothesis is developed to analyze the relationship between the variables.

H_1 : Brand loyalty has a positive and significant effect on purchase intention.

H_2 : Brand awareness has a positive and significant effect on purchase intention.

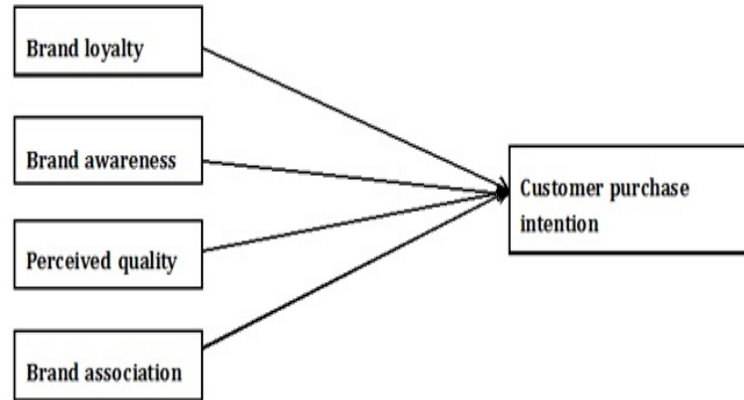
H_3 : Perceived quality has a positive and significant effect on purchase intention.

H_4 : Brand association has a positive and significant effect on purchase intention.

2.8 Theoretical Framework

3 Methods

Research design is a process that combines fundamental research. It is referred to as, demonstrating the various logical aspects of the strategies according to the analysis that was carried out. The sample size consists of only 200 respondents. Adopted instruments were used in this study. Further, these



Modified from Hayes & Bob (2008), Gustafson & Chabot (2007), Severi & Ling (2013), Krishnan (1996) and Bachler (2004).

Figure 1: Theoretical Framework

instruments were modified in the present study context. 5 point Likert scale was used. Tools that have been used in the study are summarized below in table 1.

Table 1: Summary of Scales Used in the Study

Sr. No.	Variable	No. of Items
1	Brand Loyalty	3
2	Brand Awareness	4
3	Perceived Quality	4
4	Brand Association	4
5	Customer Intention	2

The data was collected through convenience sampling. The data was analyzed in three steps in this study. The first step of the study is collecting data and treating the missing values in the different questions. The second step of the survey was checking the normality and reliability of the data. After reviewing the reliability, the third step was the inferential analysis of the respondent's data, which was done by applying the correlation and regression analysis to check the variables main effects.

Before proceeding to the third step that is the final analysis, it is essential to analyze the goodness of data by applying the reliability analysis. The data collected should demonstrate consistency in respondents' responses since the inconsistency of responses would compromise the collected data's reliability. Cronbach's alpha coefficient value for all variables is estimated to be 0.70.

According to the reliability statistics, the three items of brand loyalty and the statistics brand loyalty positively influence the purchase intention. It means that when people are going to purchase a new mobile connection they can give more importance to brand loyalty. According to these results, we say that it is essential for people while making their purchase intention. According to the reliability

statistics, brand awareness has four items. The reliability statistics show strong relationship between the independent variable brand awareness and the dependent variable customer purchase intention, because the Cronbach alpha value is 0.662, which is greater than 0.60. When we see this relationship, customers are going to purchase a new mobile connection, it can directly affect the brand awareness. When a customer is more aware of the brand, they can easily make their purchase decision.

According to the reliability statistics, table 2 shows the value of Cronbach alpha of perceived quality. This value shows the positive relation of service provider between the perceived quality and their purchase intention. When a customer goes into the market for purchase intention, they know the service provider's rate because service quality is an influential factor for the peoples to make a positive word of mouth in the market. According to the reliability statistics, the Cronbach alpha value is 0.630, which shows that the relation between the brand association and the purchase intention is good. When people purchase a new mobile connection, the brand association is positively affected due to the strong relationship between the brand association and customer purchase intention.

Table 2: Reliability Statistics

Variable	Alpha Reliability
Brand Loyalty	0.732
Brand Awareness	0.662
Perceived Quality	0.61
Brand Association	0.63

4 Results

The descriptive statistics of five demographic variables and four other variables which we studied in this research are shown in the table below. The table shows the data of 200 respondents means that n=200, the minimum value of each variable, the maximum value of each variable, the mean value of each variable and their standard deviations. The mean value of purchase intention is 3.69; along with a standard deviation value is 0.882, measured on 5 point Likert scale.

Table 3: Descriptive Statistics

	N	MIN	MAX	MEAN	STD. DEV.
Gender	200	1	2	1.335	0.47317
Age	200	1	5	1.805	1.19756
Income	200	1	5	2.215	1.32573
Network	200	1	4	2.38	0.87718
How long using mobile connection	200	1	4	2.865	1.0499
BL	200	1	5	4.0633	0.78398
BA	200	1	5	3.865	0.73063
PQ	200	1	5	3.8652	0.6633
BAS	200	1.25	5	3.765	0.78884
CS	200	1	5	3.6909	0.88287

* Source: Field data, BL: Brand Loyalty, BA: Brand Awareness, PQ: Perceived quality, BAS: Brand association, CS: Customer satisfaction.

The last part of the study is to analyze the correlation between the variables. The results of the correlation between the variables are explained below and shown in table 4. In the correlation analysis, a coefficient value between two constructs, i.e., brand loyalty and customer purchase intention, was 0.344, which is significant at p-value 0.01 is shown in table 4. So, there is a significant positive association between brand loyalty and customer purchase intention. These results verified our hypothesis H1. The correlation results illustrate a meaningful positive relationship between brand awareness and customer intention. The correlation coefficient value is 0.256, which is significant at a p-value is 0.01. The results of these two variables' relation are shown in table 4. These results support the study hypothesis: Brand awareness is positive and significant with customer intention. In this proposed relationship, the coefficient value 0.284 was found, for which the p-value is equal to 0.01. It showed a significant positive association between perceived quality and customer intention. The results of these variables relation are shown in table 4.

Table 4: Correlation Analysis

	Gender	Age Group	Income	Network	How Long	Brand Loyalty	Brand Awareness	Perceived Quality	Brand As- sociation	Customer Intention
Gender	1									
Age Group	0.054	1								
Income	0.133	.239**	1							
Network	-0.018	0.104	0.003	1						
How long	-.141*	0.007	0.039	-0.042	1					
Brand Loyalty	-0.021	0.011	-0.029	-0.081	0.047	1				
Brand Awareness	0.015	-0.023	-0.014	0.008	0.027	.519**	1			
Perceived Quality	.162*	0.031	-0.032	-0.126	-0.042	.327**	.438**	1		
Brand As- sociation	0.091	-0.109	-0.033	0.073	-0.055	0.083	0.047	-0.057	1	
Customer Intention	-0.038	-0.022	-0.043	0.075	-0.055	.344**	.256**	.284**	.478**	1

* n=200;** significant at the 0.01 level;* significant at the 0.05 level

Pearson coefficient value of the correlation between brand association and customer purchase intention was 0.478, which is substantial at a p-value 0.01 shown in table 4. So, a significant positive relationship was established between brand association and customer purchase intention.

The third and last step after the correlation analysis is the regression analysis and also sees the ANOVA values. ANOVA indicates that the whole model of your study is significant. So the value of R square is 0.371. It suggests that the study's model is good, or 37.1% influences the dependent variable caused by the independent variable.

Table 5: ANOVA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.609 ^a	0.371	0.358	0.70722

^a a. Predictors: (Constant), Brand Association, Brand awareness, Perceived quality, Brand loyalty, b. Dependent Variable: customer intention

It indicates that brand loyalty, brand awareness and perceived quality are significant because the p-value is less than 0.05. One variable, brand association, is not individually substantial because the p-value is more significant than 0.05. Beta indicates that one unit change in the independent variable due to the dependent variable.

- One unit change in brand loyalty shows that a 0.22 unit change in the dependent variable is customer purchase intention.
- One unit change in brand awareness shows that a 0.019 unit change in the dependent variable is customer purchase intention.
- One unit change in perceived quality shows that a 0.231 unit change in the dependent variable is customer purchase intention.
- One unit change in brand association shows that a 0.472 unit change independent variable is customer purchase intention.

Table 6: Coefficients

Model	Unstandardized Coeff.		Standardized Coeff.	T	Sig.
	Beta	Std. Error	Beta		
(Constant)	-0.575	0.425		-1.353	0.178
Brand Loyalty	0.247	0.076	0.22	3.266	0.001
Brand Awareness	0.023	0.085	0.019	0.267	0.79
Perceived Quality	0.308	0.085	0.231	3.61	0
Brand Association	0.528	0.064	0.472	8.237	0

5 Discussion, Conclusion, and Implications

5.1 Discussion

The study's first and primary objective is to measure brand equity and its impact on customer purchase intention. Brand equity is also assessed by brand loyalty and awareness, perceived quality and various dimensions of brand relevance. This study investigates the impact of these dimensions of brand equity on customer purchases. The first hypothesis is accepted; that is brand loyalty has significant positive effects on customer purchase intention. [Oliver \(1999\)](#) found that brand loyalty is the promise of future repurchase. Consumers with brand loyalty do not change and continue to buy the famous brand even in different circumstances. The second hypothesis is accepted that brand awareness has significant positive effects on customer purchase intention. This means that customers who have information about brands easily make purchase decisions.

The third hypothesis is accepted that perceived quality has significant positive effects on customer purchase intention. In other words, quality is an essential factor in customer purchase decisions. [Hoch & Banerji \(1993\)](#) found that perceived quality has a positive correlation with purchase decisions. The fourth hypothesis is rejected that brand association has a positive and significant effect on customers' purchase intention. It means that when the customer is more attached to some brand, they can purchase that brand. Still, in this study, the brand association has no positive and significant effect on customer purchase intention. One reason is that people are associated with a brand in the target market but do not have the buying power to purchase it. These outcomes are further supported by [SSaeed & Aslam \(2015\)](#) that brand association is not significant results in customer purchase intention.

5.2 Conclusion

In general, brand equity research demonstrates that brand loyalty, brand awareness, perceived quality and brand association have roles in brand equity. The study results show that increase in these variables produce higher levels of brand equity. The analysis suggests that brand loyalty, brand awareness and perceived quality have substantial impacts on brand equity, while the other variable, brand association, has less influence on purchase intention. These results imply that if the telecommunication brands in Sargodha have to increase their brand equity, they should focus on building customer awareness and perceived quality to achieve higher brand equity in the telecom sector. In this study, the brand association has less effect on customer purchase intention because some customers associate themselves with a brand but have low purchasing power, so they cannot purchase it. The research model shows that brand equity has a direct positive impact on customer purchase intention. Thus, these results indicate that brands with higher brand equity generate higher customer purchase intention.

Customers with higher purchase intention, in turn, are more concerned with continuing the use of mobile connectivity brands. Customers who have low purchase intention and are associated with brands are willing to purchase them but cannot due to their low income. These results demonstrate the effects of brand equity. Within the comprehensive framework of brand equity, robust analysis supports the research hypotheses. The mobile communication industry framework helps better to understand brand equity from the customers' perspective. Overall, the research objectives have been achieved. Regarding the market share of mobile connection brands, Pakistan has the largest mobile networks. Pakistan cellular-telecom density stands at 72% of the industry, divided between five players. According to Pakistan Telecommunication Authority (PTA) Jazz holds 28% of the Market, Telenor 27%, Zong 20%, Ufone 16%, and Warid 8%. As the market leader, Jazz should possess abilities from the perspective of both customers and companies.

5.3 Implications

Based on the studies reviewed, brand equity is a critical factor in the value of services to end-users, including in the Sargodha context. In particular, mobile connectivity providers conduct rich branding activities and invest in large-scale brand communication campaigns about their services. According to the present study, it is cost-effective for companies to invest in brand awareness through promotional campaigns about products and services' features. Brand managers may have quantitative goals and quality objectives to improve product performance in the marketplace or achieve individual communication goals and marketing objectives.

5.4 Limitations and Future Research Direction

First, more time and resources are needed to recruit a larger sample, and the geographic scope should be expanded to capture more accurate representative answers. Second, using both qualitative and quantitative research methods allows a more comprehensive understanding of the topic. Third, the study explores demographic factors such as gender, age, and education level.

References

- Aaker, D. A., & Equity, M. B. (1991). Capitalizing on the value of a brand name. *New York*, 28(1), 35–37.
- Chi, H. K., & Yeh, H. R. (2009). The impact of brand awareness on consumer purchase intention: The mediating effect of perceived quality and brand loyalty. *Journal of International Management Studies*, 4(1), 135–144.
- Engel, J., Blackwell, R., & Miniard, P. (1995). *Consumer behavior. 8th, forth worth*. Dryden Press, Texas.
- Gustafson, T., & Chabot, B. (2007). Brand awareness. *Cornell Maple Bulletin*, 105, 1–5.
- Hayes, B. E. (2008). The true test of loyalty. *Quality Progress*, 41(6), 20.
- Hoch, S. J., & Banerji, S. (1993). When do private labels succeed? *MIT Sloan Management Review*, 34(4), 57.
- Hoeffler, S., & Keller, K. L. (2002). Building brand equity through corporate societal marketing. *Journal of Public Policy & Marketing*, 21(1), 78–89.
- Kan, W. (2002). The study of relation between product value, brand trust, brand affect and brand loyalty. *Unpublished master thesis, Tamkang University, Taiwan*.
- Keller, K. L. (1993). Conceptualizing, measuring, and managing customer-based brand equity. *Journal of marketing*, 57(1), 1–22.
- Kotler, P. (2003). *Marketing management. 11th. new jersey: Prentice hall inc*. Pearson Education.
- Kotler, P., & Keller, K. L. (2006). *Marketing management (12e uppl.)*. New Jersey.
- Krishnan, H. S. (1996). Characteristics of memory associations: A consumer-based brand equity perspective. *International Journal of research in Marketing*, 13(4), 389–405.

- Macdonald, E. K., & Sharp, B. M. (2000). Brand awareness effects on consumer decision making for a common, repeat purchase product: A replication. *Journal of business research*, 48(1), 5–15.
- Mishra, B., Ghosh, S., & Kanjilal, K. (2020). Evaluation of import substitution strategy in indian telecom sector: Empirical evidence of non-linear dynamics. *Telecommunications Policy*, 44(7), 101998.
- Myers, C. A. (2003). Managing brand equity: a look at the impact of attributes. *Journal of product & brand management*, 12(1), 39–51.
- Oliver, R. L. (1999). Whence consumer loyalty? *Journal of marketing*, 63(4_suppl1), 33–44.
- Rashidi, H. R. (2013). Brand and its effects on customer's loyalty. *The industrial magazine*(9&10), 65–80.
- Saeed, M., & Aslam, A. (2015). Consumer's brand purchase intention in emerging markets like pakistan. *Journal of Marketing and Consumer Purchase*, 15, 113–120.
- Saroha, R., & Diwan, S. P. (2020). Development of an empirical framework of customer loyalty in the mobile telecommunications sector. *Journal of Strategic Marketing*, 28(8), 659–680.
- Severi, E., & Ling, K. C. (2013). The mediating effects of brand association, brand loyalty, brand image and perceived quality on brand equity. *Asian Social Science*, 9(3), 125.
- Shah, A. A., Memon, H., Noor, A., Sidra, S., Bhutto, A., & Khan, A. (2019). The impact of sponsorship on brand equity of cellular networks in hyderabad pakistan. *Asian Journal of Economics, Business and Accounting*, 13(3), 1–12.
- Winters, T. F. (1991, October 22). *Method and apparatus for repairing a tear in a knee meniscus*. Google Patents. (US Patent 5,059,206)
- Yee, C. J., San, N. C., et al. (2011). Consumers' perceived quality, perceived value and perceived risk towards purchase decision on automobile. *American journal of economics and business administration*, 3(1), 47–57.

RESEARCH ARTICLE

Improving the Robustness of Capital and Risk Relationship Estimation: A Fundamental Analysis

Faisal Abbas¹, Omar Masood², and Syed Moudud-Ul-Huq^{*3}

^{1,2}*Department of Accounting and Finance, University of Lahore, Pakistan*

³*Mawlana Bhashani Science and Technology University, Tangail-1902, Bangladesh*

Received: October 1, 2020; Accepted: December 11, 2020.

Abstract: This study explores the relationship between capital ratio, hazard-based capital ratio, capital buffer ratio and portfolio hazard pre, pro and post-crisis time of US banks over the extended period of 2002 and 2018. The overall results show that the capital ratio, all-out risk-based capital ratio and risk-taking are decidedly related. The adjustment in hazard taking against capital ratio is lower during and post-crisis periods. Notwithstanding, the impact of risk-based capital ratio and the capital buffer is negative and more articulated in the post-crisis period than before. The relationship between hazard-taking and capital ratios are heterogeneous for well, sufficiently, undercapitalized, high and low liquid banks. The outcomes have financial ramifications for controllers to define policies.

Keywords: Insured Banks, Crisis Period, Capital Ratios, Risk

JEL Classification Code: G21, G32

*Corresponding author: moudud_cu7@mbstu.ac.bd

1 Introduction

Over the last few decades, the world monetary system has undergone tremendous changes. Globalization has widened the debate in banking territories in developed and developing economies around the globe. Globalization and technological change have called on financial associations to become modern creative financial products to satisfy stakeholders' needs. Nonetheless, these advancements are joined by some hazards in the financial segment. The controllers have been attempting to give a general model to deal with the bank capital since Basel I was introduced in 1988. It was followed by Basel II that was presented in 2004. The latest Basel III has been dynamic since 2010. The monetary crunch 2007-2008 demonstrated that the higher proportion of capital was not fit for saving banks. Basel II's insufficiencies were an intention to grow new and more proper rules to fill this hole in the financial framework. The Basel Committee on Banking and Supervision (BCBS) gave new rules to banking oversight under the title "Basel-III" in 2010. The Basel Accord-III gives new meanings of bank capital and bank liquidity. The basic purpose of Basel III is to enhance the bank equity base and to strengthen banks' liquidity position. Basel-III provides three different proxies of bank capital in addition to the requirements of Basel-II.

The first measure is the capital adequacy rate, which should be 8% of banks' risky assets. The second measure is the tier-one ratio, which requires a 6% ratio of tier-one capital against banks' risky assets. The third proxy measure is the tier-one capital ratio of at least 4.5% of risky assets. Surprisingly, the increase in the capital level always remains the primary focus for regulators to reduce the probability of failure, as witnessed in earlier literature (Bitar et al., 2018; Jacques & Nigro, 1997). In light of the available literature, the importance and sustainability of a financial system needed to answer the following key questions regarding the association of different capital ratios and banks' portfolio risk in the post-crisis period. First, how does a change in total capital ratio, total risk-based capital ratio and capital buffer ratio affect a bank's risk-taking in the post-crisis period in comparison with the before-crisis and during-crisis period? Do the well-capitalized banks' capital ratios influence risk differently from adequately and under-capitalized insured commercial banks? Do the high-liquid insured commercial banks' capital ratios influence risk differently from low-liquid insured commercial banks? Although a plenty of studies explore the relationship between bank capital ratios and bank risk-taking (Abbas & Ali, 2020; Abbas, Butt, et al., 2019; Abbas, Iqbal, & Aziz, 2019; Abbas & Masood, 2020; Bitar et al., 2018) but evidence lack especially for well-capitalized, adequately-capitalized, under-capitalized, high-liquid and low liquid banks in the USA context.

Theoretically, there have been various hypotheses reported in the banking literature about the relationship between risk-taking and adjustment of bank capital ratios. For example, the mean-variance hypothesis suggests a positive relationship between capital and risk (Kim & Santomero, 1988; Rochet, 1992), whereas the option pricing theory concluded an inverse association between capital and risk (Keeley & Furlong, 1990). The moral hazard hypothesis supports the negative association between risk and capital ratios (Lee & Hsieh, 2013; Zhang et al., 2008). According to the moral hazard theory, bank managers normally exploit the depositor's rights in that they primarily favor their own interest for managerial compensation and secondly support the interest of shareholders for their wealth maximization. The regulatory hypothesis theory favors the positive relationship between capital and risk as evidenced in the literature (Altunbas et al., 2007; Ding & Sickles, 2018). According to the regulatory theory, banks are bound to increase their capital level with increased

portfolio risk. The positive connection between risk and capital suggested by regulators to reduce the problem of bankruptcy due to greater risk and lower capital.

The results of this study have an economic significance for regulators to consider further regulation about the adjustment of bank capital ratios and risk in order to mitigate the probability of failure. The results are not similar to the previous studies and require deep attention to formulate appropriate guidelines. For example, [Aggarwal & Jacques \(1998\)](#) found a negative coefficient of lagged risk in their results, whereas the sign is positive and highly significant in the present study results, which is consistent with [Jokipii & Milne \(2011\)](#). The findings indicate that there is a need to revise and develop a new model according to present economic conditions and this study is a step to do such.

This study explores the connection between risk and capital in the USA. This study used the sample of insured commercial banks from the USA with consolidated assets of \$300 million or above covering the period between 2002 and 2018. The model is estimated based on the two-step system GMM approach, which incorporates the endogeneity of risk and capital ratios. The study conducted by [Aggarwal & Jacques \(1998\)](#) used 2552 banks having assets of \$100 million or above as reported between 1990 and 1993. [Shrieves & Dahl \(1992\)](#) used a sample of USA banks (1984 and 1986). [Jacques & Nigro \(1997\)](#) used a sample of 2570 banks of the USA (1990 and 1991). [Jahankhani et al. \(1979\)](#) conducted a study using the data of 95 banks from the USA over the period between 1972 and 1976. [Pettway \(1976\)](#) used a sample of the USA banks and covered the period between 1971 and 1974. [Shim \(2010\)](#) used the USA companies to study the relationship between risk and capital, covering 1993 and 2004.

This study contributes to the literature by providing the latest insights into bank capital and the risk of the world's most regulated economy. To the best of the researchers' knowledge, this is the first study in the post-crisis period covering the Basel-II, Basel-III and crisis period of 2007-2009. In addition, this is the first study in the post-crisis period, which provides a deep analysis for risk and capital by dividing the banks according to their capitalization and liquidity in the USA. The findings are critical for regulators to observe the differences between pre, pro and after-crisis periods for the well, adequately, under, significantly under-capitalized, high liquid, and low-liquid banks of the USA. Generally, other studies are limited to use capital ratios measured as equity to total assets while studying the relationship between risks as measured risk-weighted assets and total assets. This study provides new insights into the influence of risk-based capital ratio and capital buffer ratio for the post-crisis period compared with before-crisis and during-crisis periods. The results guide future decision making to develop regulations for the stability of the financial system. The findings are significant because they cover the period of technological transformation and global integration of the world. The study also highlights the effect of recently developed regulations of holding a greater amount of capital on risk.

2 Literature Review

In the recent years, various studies examine the impact of bank capital on bank risk-taking ([Jiang et al., 2020](#); [Khan et al., 2017](#); [Laeven et al., 2016](#); [Lee & Hsieh, 2013](#); [Mahdi & Abbes, 2018](#); [Moudud-Ul-Huq, 2019](#); [Raz, 2018](#); [Rehman et al., 2019](#)) but the conclusion remains mixed. The theorem of [Modigliani & Miller \(1958\)](#) states that the market is fully efficient and perfect in the sense that depositors are fully informed about the true risk of their finan-

cial institutions. This situation depicts that equity holders cannot exploit the depositors. If the depositors claim greater rates against the banks' true riskiness; this means that equity holders cannot use their vigilant position to increase their own interest on the cost of depositors in the short-run. Under this condition, the value of the bank will remain independent of the debt and equity mix. Sealey Jr (1983) claims that the MM theory is not useful in banking capital structure. They state that depositors are not fully informed about the riskiness of bank assets. Therefore, they cannot monitor their banks. This situation provides an edge to the bank managers to take greater risk, which is known as a moral hazard in banking.

Jensen & Meckling (1976) argue that if depositors are unable to sign a perfect agreement with bank managers, shareholders have an edge to invest in more risky assets. The moral risk-hypothesis is additionally upheld by Green (1984) and Galai & Masulis (1976). Numerous hypothetical and observational examinations have researched the relationship between bank risk-taking and capital. For instance, by applying the mean-change theory (Kahane, 1977; Koehn & Santomero, 1980) presumed that hazard-based capital lifts the risk. However, Furlong & Keeley (1989) clarified that hazard-based capital does not expand bank risk. Shrieves & Dahl (1992) affirmed the positive connection between changes in capital and risk in their examination by utilizing USA banking information. Interestingly, Aggarwal & Jacques (1998) and Jacques & Nigro (1997) applied a comparative strategy and closed a backward relationship between hazard and capital.

Lee & Hsieh (2013) inspected the impact of capital proportion on hazard taking of Asian business banks covering 1994 to 2008. They record a reverse connection between risk and capital proportion. They contend that the ethical risk hypothesis support the negative relationship between risk and capital. Zhang et al. (2008) expressed the negative connection between risk and bank value. Altunbas et al. (2007) clarified that the connection between risk and capital is positive for commercial banks and negative for agreeable banks. Jokipii & Milne (2011) uncovered a positive relationship between hazard and the bank value level in the USA. Athanasoglou (2011) supported the positive relationship in the Southeastern area. Essentially, Teply et al. (2007) and Kufo (2015) favor the positive connection theory. Then again, Akinsoyinu et al. (2015) revealed a converse relationship between change in capital level and bank risk. The negative relationship is observationally upheld by the investigation of (Ghosh, 2014). Godlewski (2005) featured a negative connection between risk and capital. Tan & Floros (2013) found a converse connection between capital and risk.

Comparable outcomes are provided by Maji & Hazarika (2016) in their investigations. Awdeh et al. (2011) uncovered in their investigation that there is a positive connection between bank capital and risk. Alkadamani (2015) investigated the association between risk and capital by taking the example from the Middle East and finished a positive relationship. Ugwuanyi (2015) analyzed the connection between risk and capital in the post-emergency setting and concluded positive association. Although a positive and negative relationship between bank capital and risk was observed by many studies, other studies found no relationship. Van Roy (2008) conducts a study in G-10 economies and found an insignificant association. Similar results are reported by Heid et al. (2003) and Maraghni & Bouheni (2015). Rime (2001) conducted a study in Swiss banking and found an insignificant relation between risk and capital. Montgomery (2005) opines in their study that banks change their portfolio into fewer risk assets. It concluded that the capital ratio has no effect on the Japanese banks' assets portfolio. Abbas, Iqbal, & Aziz (2019) examine the impact of bank capital ratios on bank risk-taking and conclude that an increase in capital buffer decreases US larger banks' portfolio risk. Ding & Sickles (2018) recently explore that there is a pos-

itive relationship between risk-taking and bank capital ratios. On the contrary [Bitar et al. \(2018\)](#) concludes an inverse relationship between bank capital ratios and bank risk-taking proxies.

3 Data and Methodology

3.1 Data

In the information structure of the current investigation, FDIC utilized the Federal Deposit Insurance Corporation (FDIC) institutional index for separating itemized data about the financial framework necessary to dissect the information over the long haul as indicated by the reports of FFIEC call/TFR, which is refreshed on a quarterly premise. The yearly data set accommodated financial institutions and spreads the extensive stretch of the flow research concentrated somewhere in the range of 2002 and 2018. The reason to study the large commercial of the USA is due to their significant business in banking industry of the world. The USA is the world most documented and integrated financial system. However, we only included the banks that are insured from the FDIC to keep the analysis more appropriate for our findings.

The test of the current examination study is adjusted to proportional board information containing insured commercial banks of the USA, as depicted in the reports of FDIC. Further, the advantages are additionally dependent on a united topic. There were numerous banks, almost 1806 in the referenced list on 31 December 2018, which was recorded by FDIC. However, for appropriate and reliable data analysis, the inclusion of the study sample units was based on the criteria that the listed banks should have been active on the reported date. There must not be any missing observations for any specific study variables of at least two years in the studied period. The total assets of banks must be greater than \$300 million on the 31st December, 2018. After filtration of properly used criteria, there were 902 banks selected for the study sample size. The detail of proxies are enlisted in the table:

3.2 Econometric Model

The dynamic model is applied in this study. There are several reasons for applying GMM. Significantly, GMM controls the endogeneity of the lagged reliant variable in a dynamic setting. The endogeneity problem means that there is a connection between independent variables and the error term. GMM controls the measurement error problem, reduces omitted bias issue and controls the unobserved heterogeneity problem in panels. The means of the dynamic panel regression models have p lags of the dependent variable and comprise unobserved panel effects, which may be fixed or random. The correlation between unknown panel effects and the lagged value of dependent variables makes the estimators inconsistent.

[Arellano & Bond \(1991\)](#) provide a method called the generalized method of moments as the solution to make the estimators consistent. They argue that the use of a one-step and two-step approach in a large instrument matrix and robust standard errors for a one-step GMM approach are to be found seriously biased. To overcome this serious biasedness, [Windmeijer \(2005\)](#) presented a robust estimator for the two-step GMM approach, which is more efficient and is a biased-free method to calculate estimators. Later, [Blundell & Bond](#)

Table 1: Definitions and Measurement of Variables

Variable Name	Measurement
Bank Risk (TR)	Risk-Weighted Assets/Total Assets
Total Capital Ratio (TCAPR)	Total Equity to Total Assets (Abbas & Masood, 2020; Lee & Hsieh, 2013)
Risk-Based Capital Ratio (TRBCR)	Tier I Plus Tier II to Risk-Weighted Assets (Guidara et al., 2013)
Capital Buffer (BTRBC)	Actual Capital Ratio less than 8% (Abbas et al., 2020; Guidara et al., 2013)
Profitability (ROA)	Net Income to Total Assets (Yousaf et al., 2019)
Liquidity Ratio (LIQ)	Liquid assets to total assets (Yousaf et al., 2019, 2018)
Loan Ratio (LR)	Loans to Total Assets (Abbas, Iqbal, & Aziz, 2019)
Bank Size	Natural Log of Total Assets (Ali et al., 2019; Lee & Hsieh, 2013)
Market Power (MP)	Total Bank Deposit/Total Industry Deposit
Bank Efficiency (BE)	Cost/Revenue
Income Diversity (INDIV)	Non-Interest Income/Total Assets
Trade Freedom Index	Index is taken from the Heritage foundation (Abbas & Ali, 2020)
Inflation Rate (CPI)	Annual change in Consumer Price Index (Lee & Hsieh, 2013)
During-Crisis Dummy (DC)	1 for 2007 to 2009 otherwise 0
Before-Crisis Dummy (BC)	1 for 2002 to 2006 otherwise 0
After-Crisis Dummy (AC)	1 for 2010 to 2018 otherwise 0

(1998) worked on it further, and their findings have been used by various studies in the field of banking (Abbas, Butt, et al., 2019; Abbas, Iqbal, & Aziz, 2019; Fiordelisi et al., 2011; Lee & Hsieh, 2013; Tan, 2016). There are various simulations to run GMM like difference GMM, system GMM, where the difference and system GMM is further classified into one-step GMM and two-step GMM set. Each set has its own features and cons. Significantly, we use the two-step system GMM in this study. The two-step system GMM is more efficient than the one-step system GMM and two-step system GMM can capture the maximum values to calculate the estimators.

3.2.1 System GMM Model Specifications

The basic model of the system GMM approach is the following form:

$$\ln Y_{i,t} = \phi Y_{i,t-1} + \beta X'_{i,t-1} + (\eta + \varepsilon_{i,t}) \quad (1)$$

It is assumed that the above specification is a random walk equation and the dependent variables are persistent. Accordingly, the results of difference GMM produce an inefficient and biased parameter, particularly in finite samples. This means that the time span remains

limited and cross-sections contain long numbers. The empirical literature explains that the above bias and poor performance of difference GMM are due to poor instruments [Blundell & Bond \(1998\)](#). To deal with the above problem, the system GMM is used. The system GMM uses one equation in levels form with the first differences as instruments whereas the second equation is used in the first differences form with levels as instruments. The system GMM approach implicates a greater number of instruments, but Monte Carlo evidence recommends that where the period is limited and the dependent variable is found to be persistent, the use of system GMM reduce the bias of a small sample. There is another feature of system GMM; if there are autocorrelation and heteroscedasticity in the data, a two-step system GMM should be applied by developing a weighting matrix using residuals from the first step. It is also argued that in limited samples, the standard errors found to be downward biased. In this situation, researchers recommend applying the robust standard error approach developed by [Windmeijer \(2005\)](#), which corrects the sample bias.

3.2.2 Difference or System GMM to be Used

The basic model equation:

$$\ln Y_{i,t} = \phi Y_{i,t-1} + \beta X'_{i,t-1} + (\eta + \varepsilon_{i,t})$$

What is better to apply for consistent and unbiased parameters? The rule of thumb provided by [Bond et al. \(2001\)](#) suggests the OLS is to be applied first and the LSDV method is used second to find out the estimators. The panel OLS estimator ϕ should be the upper-bound estimate, whereas the fixed effects estimator is considered a lower-bound estimator. The decision is taken on the basis of difference GMM estimates; if the estimates are close to or below the estimators of the fixed effects method, the former estimators are considered to be downward biased due to the weak instruments, and system GMM is to be preferred as the best choice to apply instead of difference GMM.

The following model is used in this study under the condition elaborated above:

$$Y_{i,t} = \alpha + Y_{i,t-1} + \beta_1 X_{i,t} + \beta_2 Z_{i,t} + \varepsilon \quad (2)$$

Here the Y is a dependent variable which is risk in this study i, represents banks and t shows time period, t-1 is lagged value of risk. β unknown parameters X is the independent variable, which is capital in this case where it may be total capital ratio, total risk-based capital ratio and capital buffer ratio based on the simulation under observation. Z shows the list of control variables and ε is an error term.

The following model is also used by adding time dummies to find out the results of the pre, during and post-crisis period where needed. The standard form of equations when time dummies are added is as follows:

$$Y_{i,t} = \alpha + Y_{i,t-1} + \beta_1 X_{i,t} + \beta_2 Z_{i,t} + \beta_3 PeriodDummies + \varepsilon \quad (3)$$

In the above model period, dummies include pre, during and post-crisis periods. This equation provides the results of the variations of concern variables by comparing different time periods.

4 Results and Discussion

4.1 Overall Sample Results for Large Insured Commercial Banks

Table 2 reports the results of the general sample. To save space, the engaging examination and relationships grid is given in the reference section. The information contains in the correlation matrix is suitable for analysis. Notwithstanding, when the hazard is measured as risk-weighted assets, the effect of capital positively influences bank risk-taking. These outcomes are reliable with the past investigations (Aggarwal & Jacques, 1998; Altunbas et al., 2007; Jokipii & Milne, 2011; Shrieves & Dahl, 1992). The coefficient on the slacked risk in the model extents about 0.394 and is positive, which demonstrates that one reason for the expansion in the current risk is the already overarching hazard as found by Aggarwal & Jacques (1998). In any case, the positive indication of the slacked hazard is repudiating the discoveries of Aggarwal & Jacques (1998) and Shrieves & Dahl (1992). The discoveries show that the relationship between capital buffer ratio and risk-taking is critical and negative. The negative relationship is upheld by the ethical risk theory (Jacques & Nigro, 1997; Jokipii & Milne, 2011; Lee & Hsieh, 2013; Mongid et al., 2012; Zhang et al., 2008).

The effect of benefit is positive with hazard as closed by Aggarwal & Jacques (1998). Strikingly, the risk-based capital proportion and bank hazard have a positive relationship. This perception seems to support the theory that banks with a more noteworthy extent of risk-based capital would have lesser odds of default. Therefore, by keeping up a higher extent of risk-based capital against unsafe resources, commercial banks can keep the likelihood of default lower. The discoveries are in accordance with Shim (2010). The coefficient of liquidity proportion is negative, which implies that an expansion in the liquidity of banks lead decreases the risk in the short run, different things held comparative. The positive and measurably critical coefficient of advance proportion implies that the exorbitant loaning of banks increases risk.

Table 2: Overall Sample Results (Capital and Risk)

Variables	Bank-Risk	Bank-Risk	Bank-Risk
L. Bank-Risk	0.394*** -0.058	0.371*** -0.057	-0.509 -0.44
Total capital ratio	0.925** -0.418		
Risk-based capital ratio		0.536* -0.324	
Capital buffer ratio			-6.013** -2.934
Profitability	0.869* -0.495	0.724 -0.574	-13.57** -6.715
Liquidity ratio	-0.499*** -0.061	-0.533*** -0.065	-0.216 -0.206
Loan ratio	0.662*** -0.02	0.713*** -0.0274	0.401*** -0.134
Bank size	-0.006 -0.005	-0.002 -0.006	-0.073** -0.034
Market power	-0.001 -0.043	-0.015 -0.046	0.029 -0.087
Bank efficiency	0.001 0	0.004 0	-0.006* -0.003
Income diversity	0.006 -0.037	-0.01 -0.05	0.503** -0.24
Trade freedom	4.536 0	0.001 0	0.010** -0.004
Inflation rate	-0.004*** 0	-0.003*** 0	0.013* -0.007
Observations	13,483	13,498	13,498
Banks	900	901	901
No. of Instruments	15	15	15
AR(2)	0.171	0.166	0.051
Hansen Test Statistics	0.078	0.064	0.837

*** p<0.01, ** p<0.05, * p<0.1

4.2 During, Before, and Post-Crisis Period

Table 3 shows the results of pre, pro and after-crisis periods. The lagged coefficient of bank risk is found to be positive and statistically significant to influence the current risk. The positive sign indicates that the previous risk remains part of the current risk. The positive sign of the lagged risk is contradicting with [Aggarwal & Jacques \(1998\)](#) and [Shrieves & Dahl \(1992\)](#). The results show that bank capital ratios' influence is not similar in pre, pro and after-crisis period. The relationship between the bank capital ratio and bank risk ratio is statistically significant and positive. The results show that the intensity of banks' risk-taking due to the increase in the total capital ratio was greater before the crisis as compared with during and before-crisis periods. The proportionate change risk against capital ratio is lower during and in the after-crisis period, which indicates the effect of regulators' rec-

ommendations. The positive relationship is supported by the regulatory theory (Aggarwal & Jacques, 1998; Altunbas et al., 2007; Jokipii & Milne, 2011; Shrieves & Dahl, 1992). The findings reveal that the relationship between the total risk-based capital ratio and bank risk is negative and significant. The results are favoring the regulators' suggestion for a higher amount of capital to decrease risk.

The coefficients of the risk-based capital ratio show that the influence is more pronounced in the post-crisis period as compared with the pre-crisis period. However, the impact remains more significant during the crisis than the pre-crisis period. The findings reveal that the connection between the capital buffer ratio and risk is negative and significant. The negative relationship is supported by the moral hazard theory (Jacques & Nigro, 1997; Lee & Hsieh, 2013; Zhang et al., 2008). The role of profitability, liquidity, income diversification and loan ratio and trade freedom have an economic significance for readers. The profitability and liquidity remain key determinants to decrease the risk of large insured commercial banks during crisis, which supports the holding of higher liquidity. The results show that the loan ratio is a cause to increase risk. It is observed that more diversified banks take greater risk during-crisis period. The impact of trade freedom also encourages banks manager to take a greater risk.

Table 3: During-Crisis, Before-Crisis, and Post-Crisis Period Results

Variables	Bank-Risk	Bank-Risk	Bank-Risk
L. Bank-Risk	0.275***	0.188***	0.218***
	-0.05	-0.047	-0.032
Total capital ratio	0.517***		
	-0.13		
Total capital ratio*DC	-0.240**		
	-0.102		
Total capital ratio*AC	-0.272**		
	-0.121		
Risk-based capital ratio		-0.437***	
		-0.099	
Risk-based capital ratio*DC		-0.234***	
		-0.07	
Risk-based capital ratio*AC		-0.246***	
		-0.082	
Capital buffer ratio			-0.383***
			-0.14
Capital buffer ratio*DC			-0.306***
			-0.106
Capital buffer ratio*AC			-0.276**
			-0.124
Profitability	-0.601	-1.950***	-0.969***
	-0.574	-0.561	-0.309
Liquidity ratio	-0.496***	-0.456***	-0.447***
	-0.06	-0.061	-0.059
Loan ratio	0.675***	0.644***	0.653***
	-0.017	-0.018	-0.017
Bank size	-0.014**	-0.021***	-0.009*
	-0.006	-0.006	-0.005
Market power	0.024	0.014	-0.025
	-0.046	-0.049	-0.051
Bank efficiency	0.001	0.001*	0.001
	0	0	0
Income diversity	0.125**	0.246***	0.127***
	-0.052	-0.048	-0.037
Trade Freedom	0.005**	0.007***	0.004***
	-0.002	-0.002	-0.001
Inflation rate	-0.001	0.001	-0.001
	-0.001	-0.001	0
Observations	13,483	13,498	13,498
Banks	900	901	901
No. of Instruments	14	15	17
AR(2)	0.117	0.074	0.128
Hansen Test Statistics	0.056	0.091	0.003

4.3 Well, Adequately and Under-Capitalized Banks Results

Table 4 shows the aftereffects of all-around promoted protected business banks. The slacked intermediary of risk is found to affect the current risk. The positive indication of slacked risk is negating the literature (Aggarwal & Jacques, 1998; Shrieves & Dahl, 1992). The results show that total capital, risk-based capital and capital buffer ratio are found inconsequential to even consider influencing the all-around promoted bank hazard taking (Shrieves & Dahl, 1992). These outcomes demonstrate that very much promoted banks are not bound to assemble their capital with an expansion in their risk because of lower limitations and relax checking. The outcomes are more esteemed for controllers to evaluate the conduct of well-capitalized banks to expand their capital and risk while watching the genuine story of risk-taking and the capital ratio.

Table 4: Well Capitalized Banks Results

Variables	Bank-Risk	Bank-Risk	Bank-Risk
L. Bank-Risk	0.653**	0.513**	0.501***
	-0.284	-0.217	-0.19
Total capital ratio	1.942		
	-1.474		
Profitability	0.28	-0.408	-0.684
	-1.986	-1.707	-1.594
Liquidity ratio	-0.573**	-0.650***	-0.642***
	-0.272	-0.24	-0.241
Loan ratio	0.589***	0.628***	0.618***
	-0.07	-0.06	-0.057
Bank Size	-0.024	-0.026	-0.027
	-0.018	-0.02	-0.02
Market power	0.18	-0.005	-0.094
	-0.554	-0.529	-0.529
Bank efficiency	0.001	-0.001	-0.001
	-0.002	-0.001	-0.001
Income diversity	0.112	0.0643	0.118
	-0.166	-0.148	-0.161
Trade freedom	0.003**	0.003**	0.004**
	-0.001	-0.001	-0.001
Inflation rate	1.675	0.001	0.002
	-0.002	-0.002	-0.003
Risk-based capital ratio		0.742	
		-0.827	
Capital buffer ratio			0.891
			-0.881
Observations	2,110	2,125	2,125
Banks	141	142	142
No. of Instruments	12	12	12
AR(2)	0.051	0.171	0.133
Hansen Test Statistics	0.827	0.262	0.293

4.4 Adequately Capitalized Banks Results

Table 5 exhibits the presence of adequately capitalized banks on the association between risk and capital proportions. The outcomes propose that the general capital degree of adequately capitalized banks might not affect bank hazard taking that is viable with [Shrieves & Dahl \(1992\)](#). The discoveries exhibit that the connection between the general risk-based capital proportion, the capital buffer proportion and the risk is negative. The outcomes recommend that the rise in the risk-based capital proportion and the capital cradle proportion adds to a fall in the probability of adequately promoted secured business banks. The negative affiliation between capital and risk proportions is affirmed by [Jacques & Nigro \(1997\)](#), [Lee & Hsieh \(2013\)](#) and [Zhang et al. \(2008\)](#).

Table 5: Adequately Capitalized Banks Results

Variables	Bank-Risk	Bank-Risk	Bank-Risk
L. Bank-Risk	0.387***	0.201	0.176
	-0.136	-0.131	-0.135
Total capital ratio	0.313		
	-0.937		
Profitability	0.461	-4.075*	-3.872*
	-2.408	-2.086	-1.966
Liquidity ratio	-0.582***	-0.457**	-0.466**
	-0.218	-0.196	-0.195
Loan ratio	0.667***	0.611***	0.616***
	-0.045	-0.048	-0.045
Bank size	0.011	-0.019	-0.015
	-0.016	-0.016	-0.014
Market power	-0.813**	-0.861***	-0.869***
	-0.344	-0.322	-0.308
Bank efficiency	0.002	0.001	0.002
	-0.002	-0.001	-0.001
Income diversity	0.00814	0.311**	0.271**
	-0.141	-0.132	-0.118
Trade freedom	-0.004	0.002	0.001
	-0.001	-0.001	-0.001
Inflation rate	-0.003	-0.001	-0.001
	-0.002	-0.002	-0.002
Risk-based capital ratio		-0.949*	
		-0.532	
Capital buffer ratio			-1.157*
			-0.606
Observations	1,525	1,525	1,525
Banks	102	102	102
No. of Instruments	15	12	12
AR(2)	0.931	0.876	0.992
Hansen Test Statistics	0.398	0.19	0.222

4.5 Under-Capitalized Banks Results

The consequences of table 6 highlight the perceptions of under-capitalized banks. The discoveries indicate that the coefficient of slacked likelihood is positive and significant at a trust level of 10%. The hopeful indication of slacked peril is conversely with Aggarwal & Jacques (1998) and Shrieves & Dahl (1992). The outcomes show that there is no relationship between the risk and capital proportions of under-capitalized banks. These discoveries are unexpected, yet they are viable with the past examination. In a portion of the conditions, Shrieves & Dahl (1992) have thought about immaterial capital coefficients to impact threat.

Table 6: Under-Capitalized Banks Results

Variables	Bank-Risk	Bank-Risk	Bank-Risk
L. Bank-Risk	0.180*	0.226*	0.232**
	-0.095	-0.131	-0.116
Total capital ratio	-0.352		
	-0.425		
Profitability	-0.086	0.571	0.828
	-1.268	-1.354	-1.037
Liquidity ratio	-0.510***	-0.471***	-0.481***
	-0.105	-0.118	-0.116
Loan ratio	0.709***	0.650***	0.659***
	-0.036	-0.051	-0.041
Bank size	0.013	0.022**	0.022**
	-0.021	-0.01	-0.01
Market power	-0.144	-0.316	-0.293
	-0.472	-0.445	-0.376
Bank efficiency	-0.001	-0.026	-0.006
	0	0	0
Income diversity	-0.052	-0.02	-0.039
	-0.104	-0.06	-0.048
Trade freedom	-0.002	-0.004	-0.004
	-0.001	0	0
Inflation rate	-0.003**	-0.003*	-0.004**
	-0.001	-0.002	-0.001
Risk-based capital ratio		-0.482	
		-0.563	
Capital buffer ratio			-0.425
			-0.456
Observations	3,611	3,611	3,611
Banks	241	241	241
No. of Instruments	15	15	15
AR(2)	0.181	0.335	0.343
Hansen Test Statistics	0.549	0.497	0.477

Table 7 shows the results of essentially under-capitalized banks. The lagged threat coefficient is hopeful and significant at a 1% trust stage. This idealistic pointer of slacked threat recommends that the earlier peril prompts the current risk. The idealistic indication of

lagged hazard is conversely with [Aggarwal & Jacques \(1998\)](#) and [Shrieves & Dahl \(1992\)](#). The results demonstrate that the bank's capital proportion doesn't influence the bank's mischief. Shockingly, the partnership between hazard-based capital and bank hazard is both useful and important. These findings show that generously under-promoted banks are likewise neglecting to raise their profit by utilizing their restricted assets. The useful connection between capital and risk is underpinned ([Aggarwal & Jacques, 1998](#); [Shrieves & Dahl, 1992](#)). As a result, they take more risks to draw on their usable benefit in their speculations. The outcomes propose that capital support and bank threat are negatively related ([Jacques & Nigro, 1997](#); [Lee & Hsieh, 2013](#); [Zhang et al., 2008](#)). This guarantees that under-promoted banks are required to create support to lessen their risk.

Table 7: Significantly Undercapitalized Banks Results

Variables	Bank-Risk	Bank-Risk	Bank-Risk
L. Bank-Risk	0.294***	0.644***	0.301***
	-0.053	-0.183	-0.068
Total capital ratio	0.309		
	-0.271		
Profitability	-2.117***	8.743	-3.338***
	-0.516	-5.479	-0.534
Liquidity ratio	-0.480***	-0.788***	-0.477***
	-0.047	-0.205	-0.056
Loan ratio	0.697***	1.035***	0.647***
	-0.018	-0.205	-0.019
Bank size	-0.029***	0.021	-0.035***
	-0.005	-0.027	-0.006
Market power	0.053**	0.008	0.070**
	-0.025	-0.054	-0.03
Bank efficiency	-0.002	0.002	0.001
	0	-0.001	0
Income diversity	0.177***	-0.535	0.371***
	-0.032	-0.353	-0.048
Trade freedom	0.002***	-0.006	0.003***
	0	-0.004	0
Inflation rate	-0.003	-0.013*	0.001
	-0.001	-0.007	-0.001
Risk-based capital ratio		5.558*	
		-3.149	
Capital buffer ratio			-0.857***
			-0.127
Observations	6,161	6,161	6,161
Banks	411	411	411
No. of Instruments	15	12	12
AR(2)	0.995	0.126	0.35
Hansen Test Statistics	0.142	0.625	0.011

4.6 Highly-Liquid and Low-Liquid Banks Results

Table 8 shows the consequences of high-liquid banks. The slacked likelihood is viewed as optimistic and significant at 1% trust level. The idealistic indication of slacked risk is interestingly with Aggarwal & Jacques (1998) and Shrieves & Dahl (1992). The discoveries demonstrate that the capital level isn't exactly enormous. The discoveries demonstrate that the connection between the risk based capital proportion and bank peril is negative and significant at a 10% degree of trust. The detrimental relationship is viable (Jacques & Nigro, 1997; Lee & Hsieh, 2013; Zhang et al., 2008). Opposite relationship infers an ascent in hazard-based capital that contributes to a decrease in general risk. The discoveries uncovered a converse relationship between bank weakness and capital support. The theory suggests that a higher volume of capital contributes to a decrease at serious risk.

Table 8: High Liquid Banks Results

Variables	Bank-Risk	Bank-Risk	Bank-Risk
L. Bank-Risk	0.188**	0.201***	0.204***
	-0.0887	-0.0712	-0.0695
Total capital ratio	-0.681		
	-0.558		
Risk-based capital ratio		-0.574*	
		-0.322	
Capital buffer ratio			-0.575*
			-0.308
Profitability	-1.533	-2.218*	-1.978*
	-1.092	-1.144	-1.034
Liquidity ratio	-0.610***	-0.597***	-0.597***
	-0.096	-0.094	-0.094
Loan ratio	0.672***	0.618***	0.626***
	-0.026	-0.032	-0.028
Bank size	0.003	-0.002	-0.001
	-0.012	-0.012	-0.011
Market power	-0.422	-0.329	-0.313
	-0.282	-0.265	-0.257
Bank efficiency	-0.001	-0.001	-0.001
	0	0	0
Income diversity	0.0876	0.153**	0.127**
	-0.0658	-0.0686	-0.062
Trade freedom	0.001	0.001	0.001
	0	0	0
Inflation rate	-0.003**	-0.002**	-0.003**
	-0.001	-0.001	-0.001
Observations	6,718	6,733	6,733
Banks	449	450	450
No. of Instruments	12	12	12
AR(2)	0.261	0.298	0.302
Hansen Test Statistics	0.488	0.644	0.636

4.7 Low Liquid Banks Results

The discoveries of low-liquid protected business banks as found in table 9. The outcomes recommend that the coefficient of slacked likelihood is idealistic and important at a 1% level of hugeness. The idealistic sign of slacked weakness repudiates the perceptions of Aggarwal & Jacques (1998) and Shrieves & Dahl (1992). The discoveries show that there is a solid and important relationship between the general capital level and the weakness of low-fluid insurance business banks. The positive connection among risk and assets is affirmed by the administrative hypothesis (Aggarwal & Jacques, 1998; Shrieves & Dahl, 1992). The discoveries are not similar to high-fluid safeguarded business banks, since low-fluid banks send the general capital proportion to improve their effectiveness, while highly liquid banks use hazard based capital levels to control their administrative requirements.

Table 9: Low Liquid Banks Results

Variables	Bank-Risk	Bank-Risk	Bank-Risk
L. Bank-Risk	0.454***	0.450***	0.469***
	-0.076	-0.079	-0.091
Total capital ratio	0.769**		
	-0.373		
Risk-based capital ratio		0.487	
		-0.32	
Capital buffer ratio			0.52
			-0.355
Profitability	0.378	0.48	1.119
	-0.429	-0.489	-0.705
Liquidity ratio	-0.429***	-0.464***	-0.481***
	-0.065	-0.087	-0.089
Loan ratio	0.695***	0.742***	0.730***
	-0.028	-0.028	-0.029
Bank size	-0.0185**	-0.0126	-0.009
	-0.008	-0.007	-0.008
Market power	0.021	0.014	0.02
	-0.045	-0.052	-0.052
Bank efficiency	0.001	0.001	0.001*
	0	0	0
Income diversity	0.0201	0.0102	-0.0197
	-0.025	-0.026	-0.041
Trade freedom	0.001**	0.001**	0.0016**
	0	0	0
Inflation rate	-0.002*	-0.001	-0.001
	-0.001	-0.001	-0.001
Observations	6,765	6,765	6,765
Banks	451	451	451
No. of Instruments	18	18	15
AR(2)	0.282	0.251	0.294
Hansen Test Statistics	0.108	0.137	0.112

5 Conclusion

The outcomes are more noteworthy for controllers to watch the conduct of risk-taking and adjustment of bank capital of banks in the post-crisis with comparison of pre and pro-crisis periods. The bits of knowledge of well, adequately, under, significantly undercapitalized, high, and low liquid enhances the controllers for the formulation of proper rules. The outcomes show that the capital proportion and bank portfolio hazard proportion move a similar way according to the hypothesis of administrative theory. Interestingly, in the full sample, the connection between the risk-based capital proportion and bank portfolio hazard is positive. This perception seems to support the speculation that safeguarded commercial saves money with a more noteworthy extent of risk-based capital would have lesser odds of default.

Consequently, by keeping up a higher extent of risk-based capital against risk assets, banks can keep the likelihood of default lower. The impact of bank capital proportions is not comparative in pre, pro and post-crisis period. The outcomes show that the power of banks' risk-taking because of the expansion in the total capital proportion was greater in pre-crisis as contrasted to the pro and post-crisis periods. The proportionate change in portfolio hazard against the adjustment in capital proportion is lower in pro post-crisis period, which underpins the controllers' proposals. The coefficients of the risk-based capital proportion show that the impact is more articulated in the post-emergency period as analyzed with the before-emergency period. Notwithstanding, the effect stays more noteworthy during the crisis than pre-crisis period.

The adequately and well-capitalized banks undoubtedly assemble their all-out capital proportion with the increment in their risk because of lower limitations and loosen up observing. The outcomes are more esteemed for controllers to survey the conduct of very much promoted banks to build their capital and risk while watching the genuine story of risk-taking and the capital proportion of well-capitalized banks. The expansion in hazard-based capital proportion and capital cushion proportion of adequately promoted banks diminishes the risk. There is no association among hazard and the total capital proportion of under and altogether under-promoted banks. These outcomes are surprising however, predictable with past examinations. Because of fundamentally under-promoted banks, an expansion in the capital against hazard-weighted assets diminishes hazard.

The exceptionally liquid banks' hazard-based capital proportion and capital buffer proportion decrease hazard, while the total capital proportion has no impact on the risk of liquid banks. The conduct of low-liquid banks is not like liquid banks. The low-liquid banks increment their absolute capital proportion with the expansion of risk. The outcomes have suggestions for controllers to figure risk alleviation approaches as indicated by the necessity of banks.

5.1 Implications of the Study

The findings of the study have practical implications for concerned stakeholders. It is suggested that banks managers must manage their banks' capital buffer and risk-based capital level to keep their risk at a lower level for unexpected situations. It is also suggested that regulators should not only focus on building bank capital for the stability of commercial banks overall but also consider the types and categories of banks based on their capitalization and liquidity. The heterogeneity in findings of well-capitalized, adequately-

capitalized, under-capitalized, high liquid and low liquid banks has implications for policymakers in commercial banking to improve the stability of the financial system. The heterogeneity in findings of pre, pro and post-crisis periods also have implications for policymakers and regulators for the better solutions of commercial banks in future.

References

- Abbas, F., & Ali, S. (2020). Dynamics of bank capital ratios and risk-taking: Evidence from us commercial banks. *Cogent Economics & Finance*, 8(1), 1838693.
- Abbas, F., Ali, S., Yousaf, I., & Rizwan, S. (2020). How commercial banks adjust capital ratios: Empirical evidence from the usa?. *Cogent Business & Management*, 7(1), 1859848.
- Abbas, F., Butt, S., Masood, O., & Javaria, K. (2019). The effect of bank capital buffer on bank risk and net interest margin: Evidence from the us. *Global Journal of Social Sciences Studies*, 5(2), 72–87.
- Abbas, F., Iqbal, S., & Aziz, B. (2019). The impact of bank capital, bank liquidity and credit risk on profitability in postcrisis period: a comparative study of us and asia. *Cogent Economics & Finance*, 7(1), 1605683.
- Abbas, F., & Masood, O. (2020). How banks adjust capital ratios: the most recent empirical facts. *Quantitative Finance and Economics*, 4(3), 412.
- Aggarwal, R., & Jacques, K. T. (1998). Assessing the impact of prompt corrective action on bank capital and risk. *Economic Policy Review*, 4(3), 23-32.
- Akinsoyinu, C. A., et al. (2015). The impact of capital regulation on bank capital and risk decision. evidence for european global systemically important banks. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 5(3), 167–177.
- Ali, S., Shah, S. Z. A., & Chughtai, S. (2019). The role of bank competition in influencing bank liquidity creation: Evidence from china. *Journal of Business & Economics*, 11(1), 21–34.
- Alkadmani, K. (2015). Capital adequacy, bank behavior and crisis: Evidence from emergent economies. *European Journal of Sustainable Development*, 4(2), 329–329.
- Altunbas, Y., Carbo, S., Gardener, E. P., & Molyneux, P. (2007). Examining the relationships between capital, risk and efficiency in european banking. *European financial management*, 13(1), 49–70.
- 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.
- Athanasoglou, P. P. (2011). Bank capital and risk in the south eastern european region. Available at SSRN 1774585.
- Awdeh, A., El-Moussawi, C., & Machrouh, F. (2011). The effect of capital requirements on banking risk. *International Research Journal of Finance and Economics*, 66(66), 133–146.

- Bitar, M., Pukthuanthong, K., & Walker, T. (2018). The effect of capital ratios on the risk, efficiency and profitability of banks: Evidence from oecd countries. *Journal of International Financial Markets, Institutions and Money*, 53, 227–262.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of econometrics*, 87(1), 115–143.
- Bond, S. R., Hoeffler, A., & Temple, J. R. (2001). *GMM estimation of empirical growth models*. (Discussion Paper No.: 2048. Centre for Economic Policy Research)
- Ding, D., & Sickles, R. C. (2018). Frontier efficiency, capital structure, and portfolio risk: An empirical analysis of us banks. *BRQ Business Research Quarterly*, 21(4), 262–277.
- Fiordelisi, F., Marques-Ibanez, D., & Molyneux, P. (2011). Efficiency and risk in european banking. *Journal of banking & finance*, 35(5), 1315–1326.
- Furlong, F. T., & Keeley, M. C. (1989). Capital regulation and bank risk-taking: A note. *Journal of banking & finance*, 13(6), 883–891.
- Galai, D., & Masulis, R. W. (1976). The option pricing model and the risk factor of stock. *Journal of Financial Economics (JFE)*, 3(1/2).
- Ghosh, S. (2014). Risk, capital and financial crisis: Evidence for gcc banks. *Borsa Istanbul Review*, 14(3), 145–157.
- Godlewski, C. J. (2005). Bank capital and credit risk taking in emerging market economies. *Journal of banking Regulation*, 6(2), 128–145.
- Green, R. C. (1984). Investment incentives, debt, and warrants. *Journal of financial Economics*, 13(1), 115–136.
- Guidara, A., Soumaré, I., Tchana, F. T., et al. (2013). Banks' capital buffer, risk and performance in the canadian banking system: Impact of business cycles and regulatory changes. *Journal of Banking & Finance*, 37(9), 3373–3387.
- Heid, F., Porath, D., & Stolz, S. (2003). *Does capital regulation matter for bank behavior? evidence for german savings banks* (Tech. Rep.). Kiel Working Paper.
- Jacques, K., & Nigro, P. (1997). Risk-based capital, portfolio risk, and bank capital: A simultaneous equations approach. *Journal of Economics and business*, 49(6), 533–547.
- Jahankhani, A., Lynge, M. J., et al. (1979). Commercial bank financial policies and their impact on market-determined measures of risk/bebr no. 556. *Faculty working papers; no. 556*.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, 3(4), 305–360.
- Jiang, H., Zhang, J., & Sun, C. (2020). How does capital buffer affect bank risk-taking? new evidence from china using quantile regression. *China Economic Review*, 60, 101300.
- Jokipii, T., & Milne, A. (2011). Bank capital buffer and risk adjustment decisions. *Journal of Financial Stability*, 7(3), 165–178.

- Kahane, Y. (1977). Capital adequacy and the regulation of financial intermediaries. *Journal of Banking & Finance*, 1(2), 207–218.
- Keeley, M. C., & Furlong, F. T. (1990). A reexamination of mean-variance analysis of bank capital regulation. *Journal of Banking & Finance*, 14(1), 69–84.
- Khan, M. S., Scheule, H., & Wu, E. (2017). Funding liquidity and bank risk taking. *Journal of Banking & Finance*, 82, 203–216.
- Kim, D., & Santomero, A. M. (1988). Risk in banking and capital regulation. *The journal of finance*, 43(5), 1219–1233.
- Koehn, M., & Santomero, A. M. (1980). Regulation of bank capital and portfolio risk. *The journal of finance*, 35(5), 1235–1244.
- Kufo, A. (2015). Albanian banking system: Risk behaviour and capital requirements. *Journal of Applied Economics and Business*, 3(2), 5–16.
- Laeven, L., Ratnovski, L., & Tong, H. (2016). Bank size, capital, and systemic risk: Some international evidence. *Journal of Banking & Finance*, 69, S25–S34.
- Lee, C.-C., & Hsieh, M.-F. (2013). The impact of bank capital on profitability and risk in asian banking. *Journal of international money and finance*, 32, 251–281.
- Mahdi, I. B. S., & Abbes, M. (2018). Relationship between capital, risk and liquidity: a comparative study between islamic and conventional banks in mena region. *Research in International Business and Finance*, 45, 588–596.
- Maji, S. G., & Hazarika, P. (2016). Bank capital and risk adjustment decision in emerging markets: the case of india. *International Journal of Financial Services Management*, 8(3), 272–289.
- Maraghni, H., & Bouheni, F. (2015). Bank capital ratio, prudential regulation and liquidity risk taking: behavior of tunisian banks in a simultaneous approach. *International Journal of Economics and Finance*, 7(6), p263.
- Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American economic review*, 48(3), 261–297.
- Mongid, A., Tahir, I., & Haron, S. (2012). *The relationship between inefficiency, risk and capital evidence from commercial banks in asean* (Unpublished doctoral dissertation). Universiti Putra Malaysia.
- Montgomery, H. (2005). The effect of the basel accord on bank portfolios in japan. *Journal of the Japanese and international economies*, 19(1), 24–36.
- Moudud-Ul-Huq, S. (2019). the impact of business cycle on banks' capital buffer, risk and efficiency: A dynamic gmm approach from a developing economy. *Global Business Review*, 0972150918817382.
- Pettway, R. H. (1976). Market tests of capital adequacy of large commercial banks. *The Journal of Finance*, 31(3), 865–875.

- Raz, A. (2018). Risk and capital in Indonesian large banks. *Journal of Financial Economic Policy*, 10(1), 165–184.
- Rehman, Z. U., Muhammad, N., Sarwar, B., & Raz, M. A. (2019). Impact of risk management strategies on the credit risk faced by commercial banks of Balochistan. *Financial Innovation*, 5(1), 44.
- Rime, B. (2001). Capital requirements and bank behaviour: Empirical evidence for Switzerland. *Journal of Banking & Finance*, 25(4), 789–805.
- Rochet, J.-C. (1992). Capital requirements and the behaviour of commercial banks. *European Economic Review*, 36(5), 1137–1170.
- Sealey Jr, C. W. (1983). Valuation, capital structure, and shareholder unanimity for depository financial intermediaries. *The Journal of Finance*, 38(3), 857–871.
- Shim, J. (2010). Capital-based regulation, portfolio risk and capital determination: Empirical evidence from the US property-liability insurers. *Journal of Banking & Finance*, 34(10), 2450–2461.
- Shrieves, R. E., & Dahl, D. (1992). The relationship between risk and capital in commercial banks. *Journal of Banking & Finance*, 16(2), 439–457.
- Tan, Y. (2016). The impacts of risk and competition on bank profitability in China. *Journal of International Financial Markets, Institutions and Money*, 40, 85–110.
- Tan, Y., & Floros, C. (2013). Risk, capital and efficiency in Chinese banking. *Journal of International Financial Markets, Institutions and Money*, 26, 378–393.
- Teply, P., Matejašák, M., et al. (2007). *Regulation of bank capital and behavior of banks: Assessing the US and the EU-15 region banks in the 2000–2005 period* (Tech. Rep.). Charles University Prague, Faculty of Social Sciences, Institute of Economic
- Ugwuanyi, G. O. (2015). Regulation of bank capital requirements and bank risk-taking behaviour: Evidence from the Nigerian banking industry. *International Journal of Economics and Finance*, 7(8), 31–37.
- Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, 126(1), 25–51.
- Yousaf, I., Ali, S., & Hassan, A. (2019). Effect of family control on corporate dividend policy of firms in Pakistan. *Financial Innovation*, 5(1), 42.
- Yousaf, I., Ali, S., & Shah, S. Z. A. (2018). Herding behavior in Ramadan and financial crises: The case of the Pakistani stock market. *Financial Innovation*, 4(1), 16.
- Zhang, Z.-y., Jun, W., & Liu, Q.-f. (2008). Impacts of capital adequacy regulation on risk-taking behaviors of banking. *Systems Engineering-Theory & Practice*, 28(8), 183–189.

RESEARCH ARTICLE

Identifying Optimal ARIMA Type Forecasting Model for COVID-19 Datasets of Pakistan

Mudassar Rashid¹, Shahid Akbar², Usman Shakoor ^{*3}, and Sher
Akbar⁴

^{1,3}*Department of Economics, COMSATS University, Islamabad*

²*International Institute of Islamic Economics, International Islamic University Islamabad*

⁴*Department of Statistics, Quaid-i-Azam University, Islamabad*

Received: October 18, 2020; Accepted: December 12, 2020.

Abstract: The COVID-19 has adversely affected almost all countries of the world in a few months span and most of the countries are not able to manage the adverse impacts of it. There is a need for study that gives some help in management of this pandemic in future. Keeping this objective, this research evaluated the forecast performance of three ARIMA type models; Simple ARIMA, Sutte-ARIMA, and Wavelet-ARIMA for the COVID-19 data sets of Pakistan from 26 February 2020 to 13 July 2020. The data is separated into two portions: training and testing data. Training data ranges from 26th Feb, 2020 to 6th July, 2020 with 132 data points, for three series confirmed cases, deaths, and recoveries, respectively. On the other hand, testing data comprised of seven observations ranges from 7th July, 2020 to 13th July, 2020 for possible data validation process. The testing data is used to check the forecasting accuracy of the models used in this study. This study has compared three ARIMA type models predictive performances based on our data. Prediction performance for the next 7 days of testing data is applied through 3 different error measurements (MAE, MAPE, RMSE). Based on our findings, it is observed that Sutte-ARIMA performs best as compared to other two ARIMA type models, while Wavelet ARIMA performs worst. This study will help policy makers to make future management in better ways to keep away people from adverse effect of such pandemics.

Keywords: ARIMA, Wavelet-ARIMA, Sutte-ARIMA, COVID-19, Loss Functions

JEL Classification Code: B23, C53

*Corresponding author: usman.shakoor@comsats.edu.pk

1 Introduction

Since last seven months, the world is witnessing a pandemic named COVID-19 which is identified as a transmitted disease with deadly nature (*WHO*, 2020). This infectious disease, which (started its roots from city of Wuhan) was reported in Wuhan, instigated by a new virus named SARS-CoV-2 reported in China (Yang et al., 2020). Aerosol transmission, human to human contact, and transmission by touch are the three basic primary ways to spread the virus (Malik et al., 2016; WHO, 2003). The COVID-19 has adversely affected over 209 countries in all regions of the world which shows that how fast it is spreading. Up till now (13th July, 2020) the total confirmed cases and deaths are reported as 12,769,098 and 566, 652 around the globe, respectively (WHO, 2020 b). To date, USA with 3,225, 950 confirmed cases followed by Brazil with 1,839,850 and India with 878,254 are identified as the most affected nations.

In Pakistan, a first infected person was reported in Karachi on 26th February, 2020 and on the same date another confirmed patient of COVID-19 was identified in capital territory of Islamabad. A few days later with increasing number of confirmed cases, government-imposed lockdown to control the spread of the disease. However, due to already weak economic conditions the COVID-19 further much affected the economy as a result the government uplifted the lockdown very soon. Soon after that the number of cases started rise exponentially and up to date Pakistan with confirmed cases 251, 625 stands as the 11th country in the world with the most number of cases (*WHO*, 2020).

To evaluate the impact of uplifting of lockdown in Pakistan, it is essential to make a forecast projection of the COVID-19 dataset. Time series data varies with time and in certain cases it varies in an abrupt way. To investigate these variable pattern of time series, different studies have been conducted to model and forecast the nature of the data. Most recently different models are proposed to model and forecast the COVID-19 datasets: a SIRD model is proposed to forecast spread of COVID-19 in France, Italy and China in a study conducted by Fanelli Piazza (2020), an ARIMA model is applied by (Benvenuto et al., 2020) in their study to forecast COVID-19, a generalized logistic growth model (GLM) is suggested to make forecast projection of COVID-19 in a study (Roosa et al., 2020) for China, a simple exponential curve is fitted to predict COVID-19 outside China by (Koczkodaj et al., 2020).

Similarly, a comparison between ARIMA and Sutte-ARIMA on the basis of short-term forecast for COVID-19 dataset of Spain is made and it is witnessed that Sutte-ARIMA achieves best forecast (A. S. Ahmar & del Val, 2020). Further, Wavelet-ARIMA and ARIMA models are compared on the basis of prediction gain for COVID-19 dataset of Italy, France, USA, UK, Spain and it is detected that Wavelet-ARIMA produces good forecast (Singh et al., 2020). Majority of the studies have used ARIMA type models to forecast the COVID-19 dataset. In view of the existing literature, ARIMA type models are used to model and predict the COVID-19 data set of Pakistan and to identify the optimal forecast model having minimum prediction error in terms of Mean Absolute Percentage Error (MAPE), Mean Absolute Error (MAE) and Root Mean Squares Error (RMSE).

2 Material and Methods

2.1 Data

In order to carry out this study; data for total recoveries, confirmed cases, and deaths of COVID-19 is obtained from February 26, 2020 to July 13, 2020 from National Institute of Health (NIH)-Islamabad daily based reports (NIH, 2020). NIH works under the Ministry of Institute of Health Services of Pakistan and reports daily data of COVID-19 since February 26, 2020. The reported data comprises

total confirmed cases, deaths, and recovered cases of each province of Pakistan. Our investigation is based on aggregate number of recoveries, confirmed cases, and deaths.

2.2 Forecasting Models

To analyze the COVID-19 data, this research study considers Autoregressive Integrated Moving Average (ARIMA), Sutte-ARIMA, and Wavelet-ARIMA models.

2.2.1 ARIMA Model

This model is generally denoted by ARIMA (p,d,q) where ‘p’, ‘q’, and ‘d’ shows the lag order of Autoregressive (AR), Moving Average (MA), and order of integration respectively. Mathematically, for series X:

$$X_t = \theta_1 X_{t-1} + \theta_2 X_{t-2} + \theta_p X_{t-p} + \varepsilon_t - \phi_1 \varepsilon_{t-1} - \dots - \phi_q \varepsilon_{t-q} \dots \dots \varepsilon_t \sim WN(0, \delta^2) \quad (1)$$

$$X_t - \theta_1 X_{t-1} - \theta_2 X_{t-2} - \dots - \theta_p X_{t-p} = \varepsilon_t - \phi_1 \varepsilon_{t-1} - \dots - \phi_q \varepsilon_{t-q}$$

$$X_t - \theta_1 B X_t - \theta_2 B^2 X_t - \dots - \theta_p B^p X_t = \varepsilon_t - \phi_1 \varepsilon_t - \dots - \phi_q B^q \varepsilon_t$$

$$\theta_p(B)^p X_t = \phi_q(B)^q \varepsilon_t \quad (2)$$

$$\theta_p(B) = (1 - \theta_1 B - \theta_2 B^2 - \dots - \theta_p(B)^p), \phi_q(B) = (1 - \phi_1 B - \dots - \phi_q(B)^q)$$

With 1st difference the ARIMA is:

$$\theta_p(1 - B)^d X_t = \phi_q(B) \varepsilon_t, \varepsilon_t \sim WN(0, \delta^2) \quad (3)$$

2.2.2 Sutte ARIMA Model

This forecasting model uses α -Sutte indicator to forecast the series under consideration on the basis of previous data of the series, (Ahmar et al., 2018). Last four observations ($X_t(t-1), X_t(t-2), X_t(t-3), X_t(t-4)$) provides support to forecast the data, [14]. The following equations are used to perform -Sutte indicator,

$$X_t = \frac{\alpha \left(\frac{\Delta x}{\alpha + \delta} \right) + \beta \left(\frac{\Delta y}{\beta + \alpha} \right) + \gamma \left(\frac{\Delta z}{\gamma + \beta} \right)}{3} \quad (4)$$

Where, $\alpha = X_{t-3}$, $\beta = X_{t-2}$, $\gamma = X_{t-3}$, $\delta = X_{t-4}$, $\Delta x = \alpha - \delta$, $\Delta y = \beta - \alpha$, $\Delta z = \gamma - \beta$.

Then Sutte ARIMA forecast is defined as the average of ARIMA and -Sutte indicator, hence adding equation (2) and equation (4) after further simplifying both of the equations, so

$$(1 - \theta_1 B - \theta_2 B^2 - \dots - \theta_p(B)^p) X_t, \phi_q(B) = (1 - \phi_1 B - \dots - \phi_q(B)^q) \varepsilon_t$$

$$X_t - \theta_1 X_{t-1} - \theta_2 X_{t-2} - \dots - \theta_p X_{t-p} = \varepsilon_t - \phi_1 \varepsilon_{t-1} - \dots - \phi_q \varepsilon_{t-q}$$

$$X_t = \theta_1 X_{t-1} + \theta_2 X_{t-2} + \dots + \theta_p X_{t-p} + \varepsilon_t - \phi_1 \varepsilon_{t-1} - \dots - \phi_q \varepsilon_{t-q}$$

$$X_t = \theta_1 \gamma + \theta_2 \beta + \theta_3 \alpha + \theta_4 \delta + \dots + \theta_p X_{t-p} + \varepsilon_t - \phi_1 \varepsilon_{t-1} - \dots - \phi_q \varepsilon_{t-q}$$

and,

$$X_t = \alpha \left(\frac{\Delta x}{3\alpha + 3\delta} \right) + \beta \left(\frac{\Delta y}{3\beta + 3\alpha} \right) + \gamma \left(\frac{\Delta z}{3\gamma + 3\beta} \right)$$

$$X_t = \alpha \left(\frac{2\Delta x}{3\alpha + 3\delta} \right) + \beta \left(\frac{2\Delta y}{3\beta + 3\alpha} \right) + \gamma \left(\frac{2\Delta z}{3\gamma + 3\beta} \right)$$

Now,

$$2X_t = \theta_1 \gamma + \theta_2 \beta + \theta_3 \alpha + \theta_4 \delta + \dots + \theta_p X_{t-p} + \varepsilon_t - \phi_1 \varepsilon_{t-1} - \dots - \phi_q \varepsilon_{t-q} + \alpha \left(\frac{2\Delta x}{3\alpha + 3\delta} \right) + \beta \left(\frac{2\Delta y}{3\beta + 3\alpha} \right) + \gamma \left(\frac{2\Delta z}{3\gamma + 3\beta} \right)$$

$$X_t = \left(\frac{\theta_1}{2} + \frac{2\Delta z}{3\gamma + 3\beta} \right) \gamma + \left(\frac{\theta_2}{2} + \frac{2\Delta y}{3\beta + 3\alpha} \right) \beta + \left(\frac{\theta_3}{2} + \frac{2\Delta x}{3\alpha + 3\delta} \right) \alpha + \frac{\theta_4 \delta}{2} + \frac{\theta_p X_{t-p}}{2} + \dots + \frac{\theta_4 \delta}{2} + \frac{\varepsilon_t}{2} - \frac{\phi_1 \varepsilon_{t-1}}{2} - \dots - \frac{\phi_q \varepsilon_{t-q}}{2} \quad (5)$$

The last equation is called Sutte-ARIMA model.

2.2.3 Wavelet-ARIMA Model

Wavelet is basically a mathematical approach to transform the series under investigation into a dissimilar domain in order to analyze and process the series (Dong et al., 2001). It is a localized function having mean zero and capable to analyze transient and non-periodic signals (Davidson et al., 1997; Parmar & Bhardwaj, 2013; Saâdaoui & Rabbouch, 2014; Salzberger et al., 2020) and is considered to be suitable for analyzing the nonstationary time series data. Wavelets are based on the “mother wavelet” which are defined as,

$$\psi_{a,b}(t) = \frac{1}{\sqrt{|a|}} \psi\left(\frac{t-b}{a}\right); a, b \in R; a \neq 0 \quad (6)$$

Here parameters ‘a’ and ‘b’ are called scaling and translation parameters measuring the degree of compression and time location of the wavelet respectively. Since the data under consideration is discrete with defined length in nature so the following time series, with decomposition into detail components and approximation, is used.

$$f(t) = \sum_{k=-\infty}^{=1+2^{j-k}} \alpha_{j,k} \varphi_{j,k}(t) + \sum_{j=1}^j \sum_{k=-\infty}^{=1+2^{j-k}} \beta_{j,k} \psi_{j,k}(t) \quad (7)$$

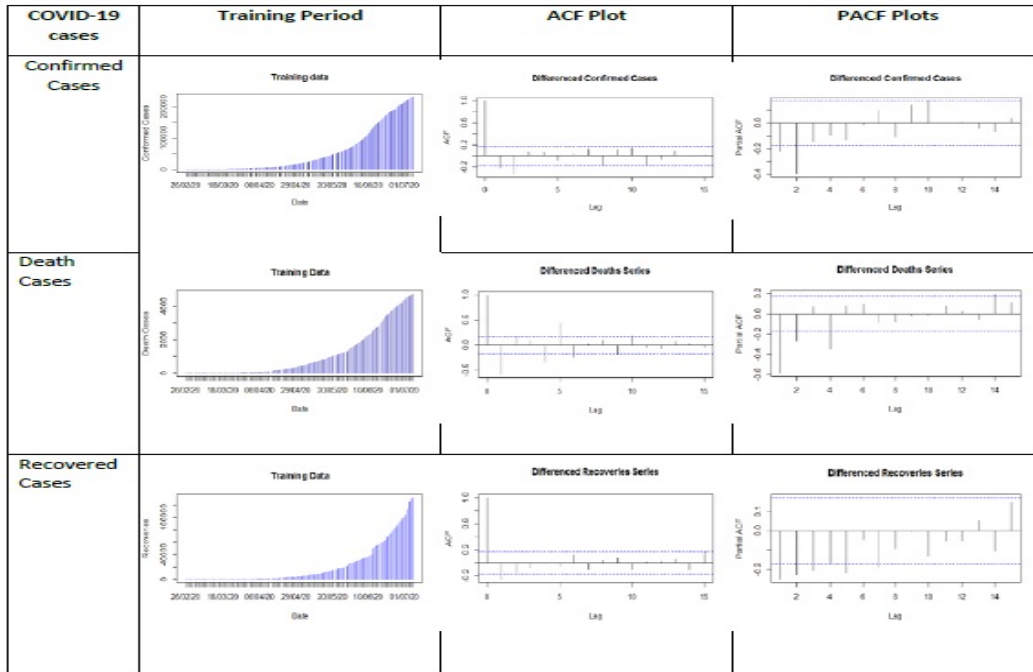
The Wavelet decomposition and ARIMA model both deals with non-linear and linear tendencies of the data features in order to model and forecast the data. For our procedure, we have used Haar filter

to estimate Wavelet-ARIMA model in correspondence with study of [Nguyen & Nabney \(2010\)](#) and [Jin & Kim \(2015\)](#). They pointed out that Haar filter performs well over other filters like Symlet filter, Daubechies filter and Coiet filter. The reason is that Haar filter uses current and preceding values within a given series while other filters use succeeding values. Through this characteristic, Haar filter is considered to be a more appropriate to prediction as it does not need estimated values outside the original series while the other filters use the values from the beginning of the data series.

3 Results

This study started empirical calculations for three datasets (i.e. confirmed, Deaths and Recovered cases) with implication of classical time series ARIMA (p,d,q) model using a “forecast” package in R software ([Hyndman et al., 2020](#)). Box-Jenkins methodology ([Benvenuto et al., 2020](#)) is implemented to identify the parameters of the ARIMA model with the help of ACF and PACF plots for possible parameters identifications, Table 1. In order to check for stationarity of the series under investigation Augmented Dicky Fuller (ADF) test ([Dickey & Fuller, 1981](#)) is used. An ARIMA model with minimum values of AIC and BIC ([Akaike, 1978](#); [Schwarz et al., 1978](#)) is picked and identified as the best fitted model. The fitted ARIMA models for three datasets are; ARIMA (1,2,3) for confirmed cases, ARIMA (2,2,0) for death cases and ARIMA (3,2,1) for recovered cases series.

Table 1. Training datasets with their corresponding PACF and ACF plots for Confirmed, Deaths and Recovered cases of COVID-19 in Pakistan



Finally, for comparison purpose of predictive performance, forecasts for next 7 days are obtained for each and every series. Plots for the residuals error using ARIMA models are calculated and presented in figure 1.

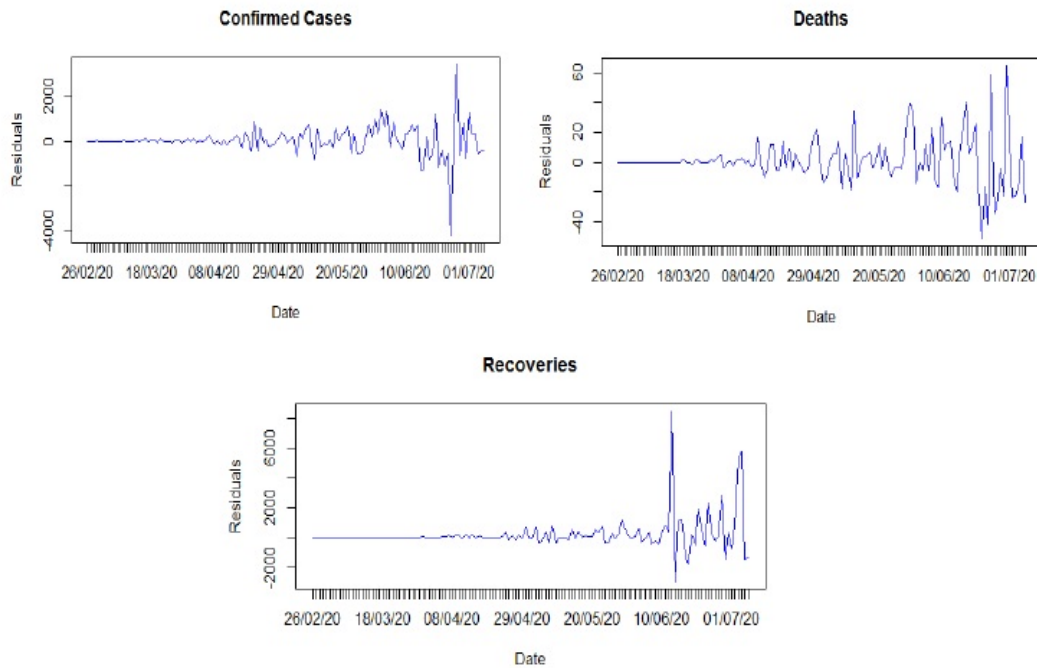


Figure 1. Plots for the residuals of ARIMA model applied on Confirmed, Deaths and Recovered cases

An interesting scenario is to see the oscillating and non-stationary residuals plots for all datasets generated through ARIMA model. These oscillations are captured through application of wavelet transformation, for decomposition of time series datasets in a linear combination manner. Thus we used wavelet transformation along with ARIMA model for comparative analysis using “TSPred” package in R software (Rebecca Eduardo, 2018). Forecasts for next 7 days are also obtained using Wavelet ARIMA model. Moreover, we have also used Sutte-ARIMA model to make our study more comprehensive. For this purpose we used “suttee Forecast R” and “Rcmdr Plugin. Suttee Forecast” packages using R version (3.5.1) (A. S. Ahmar, 2017a,b). Forecasts for 7 days ahead are obtained using Sutte-forecast algorithm for possible comparative analysis.

Table 2 shows the forecast of confirmed cases in Pakistan for the next 7 days using three different models and error measures. Results shows that Sutte-ARIMA outperformed other ARIMA type models, having evidence from all three accuracy measures (MAE, MAPE and RMSE) with lowest forecast errors.

Table 2: Comparison for the forecast error of next 7 days on confirmed cases of COVID-19 in Pakistan.

Date	Actual	ARIMA	Sutte-ARIMA	Wavelet-ARIMA
7/7/2020	234509	235515	235332.25	235047.2
7/8/2020	237489	239321	238462.9	238314.8
7/9/2020	240848	243066	241789.95	241582.2
7/10/2020	243599	246769	245323.15	244849.8
7/11/2020	246351	250441	248544.4	248117.2
7/12/2020	248856	254090	251706.35	251384.8
7/13/2020	251625	257722	254631.15	243254.2
	MAE	3378.07	1787.59	2287.83
	MAPE	0.0137	0.0073	0.0094
	RMSE	3791.52	1980.57	3436.35

Moreover, Sutte-forecast also have best predictive performance shown in table 3 applied on the deaths series with lowest error measures calculated. Table 4 shows best predictive performance of the Sutte-forecast model with lowest MAE=1266.10, MAPE= 0.0086 and RMSE=1408.99 respectively, as compared to other ARIMA and Wavelet-ARIMA models.

Table 3: Comparison for the forecast error of next 7 days on Deaths cases of COVID-19 in Pakistan

Date	Actual	ARIMA	Sutte-ARIMA	Wavelet-ARIMA
7/7/2020	4839	4837.87	4835.39	4844.25
7/8/2020	4922	4905.98	4909.46	4915.75
7/9/2020	4983	4972.8	4982.67	4987.25
7/10/2020	5058	5042.77	5050	5058.75
7/11/2020	5123	5110.69	5121.12	5130.25
7/12/2020	5197	5179.3	5184.88	5201.75
7/13/2020	5270	5247.96	5258.4	5012.25
	MAE	13.52	7.16	40.89
	MAPE	0.0026	0.0014	0.0078
	RMSE	14.85	8.62	97.54

Table 4: Comparison for the forecast error of next 7 days on Recovered cases of COVID-19 in Pakistan

Date	Actual	ARIMA	Sutte-ARIMA	Wavelet-ARIMA
7/7/2020	134957	135704	136789.4	135655.8
7/8/2020	140965	140906	139599.05	138933.2
7/9/2020	145311	145942	145340	142210.8
7/10/2020	149092	150704	150323.9	145488.2
7/11/2020	153134	155431	154658.05	148765.8
7/12/2020	156700	160205	158725.6	152043.2
7/13/2020	161917	164997	162770.8	143120.2
	MAE	1704.23	1266.1	5322.34
	MAPE	0.0111	0.0086	0.0342
	RMSE	2090.87	1408.99	7757.96

4 Discussion and Conclusion

4.1 Discussion

Our findings further strengthen the existing literature (A. S. Ahmar & del Val, 2020; Benvenuto et al., 2020; Singh et al., 2020) in favor of using ARIMA type models to forecast a pandemic series. However, among ARIMA types of models, this study founded that Sutte-ARIMA model is the best performing model having minimum loss function values as compared to other two ARIMA type models considered. This indicates that -Sutte indicator (A. Ahmar et al., 2018), as an estimator, gives precise weights to the values to be forecasted and makes Sutte-ARIMA model better than ARIMA and Wavelet-ARIMA models. While, Wavelet-ARIMA model with complicated mathematical structure, as this model depends on different filters, and maximum values of loss functions stands as the worst performer forecasting model. However, simple ARIMA model is the mediocre performer forecasting one with respect to achieved loss function values.

4.2 Conclusion

In this study, we have compared the predictive performance for three types of ARIMA models: Wavelet-ARIMA, ARIMA, and Sutte-ARIMA using earlier data for COVID-19 dataset of Pakistan. We used training data of 132 observations while prediction performance of each model is checked over 7 days ahead data points. The comparative analysis revealed that Sutte-ARIMA model performed best as compared to ARIMA and Wavelet-ARIMA modeling techniques with minimum loss functions recorded for all the three datasets of COVID-19. For confirmed cases dataset Sutte-ARIMA performed 53% better than ARIMA model while, 77% more accurate than Wavelet-ARIMA model. Moreover, for the number of Deaths series Sutte-ARIMA gave similar results as reported earlier for the confirmed cases with 53.8% and 17.9% better than ARIMA and Wavelet-ARIMA model respectively. However, for recovered cases Sutte-ARIMA gave 77.3% and 15.7% better predictive performance over ARIMA and Wavelet-ARIMA model. Therefore, our findings suggest improved performance of Sutte-ARIMA model compared to ARIMA and Wavelet-ARIMA model and can be used for predicting COVID-19 datasets over the world. The expectation of deaths due to COVID-19

through this approach will assist government officials to take more precautionary measures afore any devastating condition.

4.3 Future Research Direction

This study shows the forecasting performance of ARIMA type models with respect to Wave-I of pandemic (COVID-19). In future research the comparison of same ARIMA type forecasting models with respect to Wave-II are required to more comprehensively evaluate their performances in comparison with Wave-I.

References

- Ahmar, A., Rahman, A., & Mulbar, U. (2018). α -sutte indicator: a new method for time series forecasting. In *J. phys. conf. ser* (Vol. 1040, p. 012018).
- Ahmar, A. S. (2017a). Rcmdrplugin. sutteforeastr: 'rcmdr' plugin for alpha-sutte indicator. *Journal of Physics: Conference*.
- Ahmar, A. S. (2017b). Sutteforeastr: Forecasting data using alpha-sutte indicator. OSF Preprints.
- Ahmar, A. S., & del Val, E. B. (2020). Suttearima: Short-term forecasting method, a case: Covid-19 and stock market in spain. *Science of The Total Environment*, 138883.
- Akaike, H. (1978). A new look at the statistical model identification. *Automatica*, 19(6), 465–471.
- Benvenuto, D., Giovanetti, M., Vassallo, L., Angeletti, S., & Ciccozzi, M. (2020). Application of the arima model on the covid-2019 epidemic dataset. *Data in brief*, 29, 105340.
- Davidson, R., Labys, W. C., & Lesourd, J.-B. (1997). Wavelet analysis of commodity price behavior. *Computational Economics*, 11(1-2), 103–128.
- Dickey, D. A., & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica: journal of the Econometric Society*, 1057–1072.
- Dong, Z., Guo, X., Zheng, J., & Xu, L. (2001). Calculation of noise resistance by use of the discrete wavelets transform. *Electrochemistry communications*, 3(10), 561–565.
- Hyndman, R. J., Athanasopoulos, G., Bergmeir, C., Caceres, G., Chhay, L., O'Hara-Wild, M., ... Razbash, S. (2020). Package 'forecast'. *Online] https://cran.r-project.org/web/packages/forecast/forecast.pdf*.
- Jin, J., & Kim, J. (2015). Forecasting natural gas prices using wavelets, time series, and artificial neural networks. *PLoS one*, 10(11), e0142064.
- Koczkodaj, W., Mansournia, M., Pedrycz, W., Wolny-Dominiak, A., Zabrodskii, P., Strzaška, D., ... Mazurek, J. (2020). 1,000,000 cases of covid-19 outside of china: The date predicted by a simple heuristic. *Global Epidemiology*, 2, 100023.
- Malik, M., Elkholy, A., Khan, W., Hassounah, S., Abubakar, A., Minh, N. T., & Mala, P. (2016). Middle east respiratory syndrome coronavirus: current knowledge and future considerations. *EMHJ-Eastern Mediterranean Health Journal*, 22(7), 533–542.

- Nguyen, H. T., & Nabney, I. T. (2010). Short-term electricity demand and gas price forecasts using wavelet transforms and adaptive models. *Energy*, *35*(9), 3674–3685.
- Parmar, K. S., & Bhardwaj, R. (2013). Wavelet and statistical analysis of river water quality parameters. *Applied Mathematics and Computation*, *219*(20), 10172–10182.
- Roosa, K., Lee, Y., Luo, R., Kirpich, A., Rothenberg, R., Hyman, J., ... Chowell, G. (2020). Real-time forecasts of the covid-19 epidemic in china from february 5th to february 24th, 2020. *Infectious Disease Modelling*, *5*, 256–263.
- Saâdaoui, F., & Rabbouch, H. (2014). A wavelet-based multiscale vector-ann model to predict comovement of econophysical systems. *Expert systems with applications*, *41*(13), 6017–6028.
- Salzberger, B., Glück, T., & Ehrenstein, B. (2020). *Successful containment of covid-19: the who-report on the covid-19 outbreak in china*. Springer.
- Schwarz, G., et al. (1978). Estimating the dimension of a model. *The annals of statistics*, *6*(2), 461–464.
- Singh, S., Parmar, K. S., Kumar, J., & Makkhan, S. J. S. (2020). Development of new hybrid model of discrete wavelet decomposition and autoregressive integrated moving average (arima) models in application to one month forecast the casualties cases of covid-19. *Chaos, Solitons & Fractals*, *135*, 109866.
- WHO. (2003). *Consensus document on the epidemiology of severe acute respiratory syndrome (sars) 2003. geneva: Who; 2003*.
- WHO. (2020). [.https://www.who.int/](https://www.who.int/). (Accessed: 2020)
- Yang, Y., Peng, F., Wang, R., Guan, K., Jiang, T., Xu, G., ... Chang, C. (2020). The deadly coronaviruses: The 2003 sars pandemic and the 2020 novel coronavirus epidemic in china. *Journal of autoimmunity*, *109*, 102434.

RESEARCH ARTICLE

Employers Investments in Job Crafting for Sustainable Employability in Pandemic Situation Due to COVID-19: A Lens of Job Demands-Resources Theory

Syed Muhammad Irfan* and Faisal Qadeer

Lahore Business School, University of Lahore, Pakistan

Received: October 28, 2020; Accepted: December 17, 2020.

Abstract: Job crafting is beneficial for employees and organizations, more specifically, in the current COVID-19 situation. Sustainable employability is another leading challenge for organizations. A little is known about how job crafting contributes to employee's sustainable employability. Framing in Job Demands-Resources (JD-R) theory, this study examines how employers' investments through job characteristics engage employees in job crafting behaviors that lead to sustainable employability through a motivational process and accumulation of job resources. Data was collected from knowledge workers of healthcare (n=193) and universities (n=290) located in Punjab, Pakistan. Structural equation modeling (SEM) analysis indicates a positive relationship between employers' investment, job crafting and sustainable employability. A moderated-mediation analysis confirms that high work uncertainty strengthens the job crafting process while examining the indirect relationships between employers' investment and sustainable employability through the mediation of job crafting. Organizations need to design jobs while developing human resources management policies and practices to promote job crafting and enable employees to maintain their sustainable employability.

Keywords: Employer Investments, Job Crafting, Sustainable Employability, JD-R Theory, Knowledge Workers
JEL Classification Code: J20, M51

*Corresponding author: irfansyed36@gmail.com

1 Introduction

Today jobs are more complex, challenging, dynamic and interdependent due to the rise of services and knowledge-based economies [Grant et al. \(2009\)](#); [Oldham & Fried \(2016\)](#). The current pandemic situation due to COVID-19 also dramatically altered the work structures and work methods, making the work more challenging. A unique constellation of working circumstances predominant in each job requires a frequent alteration in the job design ([Le Blanc, Demerouti, & Bakker, 2017](#)). It is difficult, even impractical, for managers and organizations to design supportive jobs that best fit all employees' needs ([Grant & Parker, 2009](#); [Zhang & Parker, 2019](#)). These situations demand employers to design resourceful and challenging jobs with the flexibility that allow employees to alter tasks and roles proactively whenever needed ([Grant, Parker & Collins, 2009](#)). Job crafting is an employees' proactive response towards job design that allows employees to alter their task, relational and cognitive job boundaries ([Wrzesniewski & Dutton, 2001](#)). Employees may craft their jobs by altering their job demands and job resources ([Tims & Bakker, 2010](#)). The job demands and resources perspective on job crafting dominate the literature ([Rudolph et al., 2017](#); [Zhang & Parker, 2019](#)).

Job crafting is an emerging, exciting and attractive job design research area ([Grant et al., 2009](#); [Ohly et al., 2010](#); [Oldham & Fried, 2016](#)). Managers and scholars permit employees and organization-driven job design approaches together better address work challenges. Literature also supports that job crafting complements the manager-driven job redesign approaches ([Demerouti, 2014](#); [Le Blanc, Demerouti, & Bakker, 2017](#)). Job crafting is an individual-level activity that motivates employees to increase well-being, performance, work meaningfulness and work identity ([Tims et al., 2012](#); [Wrzesniewski & Dutton, 2001](#)). Meta-analysis and review studies show that job crafting literature is still limited ([Lichtenthaler & Fischbach, 2019](#); [Rudolph et al., 2017](#); [Wang et al., 2016](#)). There is a call for further research to explore its antecedents, consequences and boundary conditions ([Kim, Im, & Qu, 2018](#); [Kim, Im, Qu, & NamKoong, 2018](#); [Kooij et al., 2017](#); [Lee & Lee, 2018](#); [Niessen et al., 2016](#)). Therefore, this study aims to explore new antecedents, outcomes and boundary conditions to bridge this gap.

Researchers only examine how individual attributes stimulate job crafting behaviors, but it is yet to explore how employers promote job crafting organization-wide by providing resources to craft. [Wrzesniewski & Dutton \(2001\)](#) also suggest that organizations should provide employees with opportunities to craft. Autonomy and workload are essential ingredients for job design and the core components of proactive behavior and JD-R models ([Bindl et al., 2019](#); [Schaufeli & Taris, 2014](#)). Autonomy provides employees with the necessary information and opportunities to alter their designed jobs ([Tims et al., 2013](#)). Workload is challenging job demand ([N. P. Podsakoff et al., 2007](#)). It is similar to job resources ([Bakker & Demerouti, 2018](#)). High autonomy and high workload constitute active jobs, support employees to deal with job demands, increase learning and development, and succeed in constituting healthy work ([Karasek, 1990](#)). JD-R theory ([Baik et al., 2018](#)) also asserts that all types of resources (i.e., tangible and psychological) are motivational, essential and particularly valuable when needed. This study propose that these two job characteristics constitute resourceful and challenging jobs and are label as employer investments. Therefore, this study assume that employers' investments is critical to promote craft jobs in this pandemic situation.

Research on job crafting consequences mainly focuses on establishing linkages with work engagement and several performance measures ([Lee & Lee, 2018](#); [Rudolph et al., 2017](#)). Recent studies explore other consequences such as career success, employability and perceived employability ([Akkermans & Tims, 2017](#); [Baik et al., 2018](#); [Plomp et al., 2019](#)). Although job crafting contributes to sustainable employability theoretically ([Demerouti, 2014](#); [Le Blanc, Demerouti, & Bakker, 2017](#)), it needs empirical verifications. Organizations are looking for ways to design jobs to build and main-

tain a sustainable workforce to gain a strategic advantage (Docherty et al., 2008; Smith, 2010). This study proposes that employee can boost their sustainable employability through job crafting. Sustainable employability is complex, under-research and less developed (Forrier et al., 2015; Van der Klink et al., 2016). Only a single conceptual definition by Van der Heijden (2012) receives much criticism, suggesting further improvements and revision [see (Fleuren et al., 2016)]. Sustainable employability is about the likelihood of continue working (De Cuyper et al., 2014; Vanhercke et al., 2014). Western European scholars conceptualize it through employees' ability to continue working, and in the United States, it conceptualizes through employees' motivation to continue working (Pak et al., 2019). However, both "motivation and ability to continue working" are among the core components for working long (Van der Heijden, 2012). This study conceptualizes sustainable employability as employees' ability and motivation to continue working.

There is also limited research examining the impact of boundary conditions while examining job crafting relationships with their antecedents or consequences (Rudolph et al., 2017). Recent studies suggest that boundary conditions, such as co-worker support, facilitate the job crafting process (Shin et al., 2020). Work uncertainty is a critical boundary condition for job design but rarely studied (Leach et al., 2013). It is vital in the COVID-19 situation and emerging work environment because employees experience huge variabilities in performing tasks due to variabilities in resources, technologies, or inputs/outputs. This study proposes that work uncertainty boosts the job crafting process. Work uncertainty strengthens the indirect relationships between employers' investments and sustainable employability via the mediation of job crafting. This research mainly builds on the JD-R theory (Bakker & Demerouti, 2017, 2018). Based on JD-R theory, this study proposes that the provision of resourceful and challenging jobs, which motivates employees to engage in job crafting that directs employees to maintain their sustainable employability. Organizations may use these findings to design jobs while developing human resources management (HRM) policies and practices to promote job crafting and enable employees to maintain their sustainable employability.

2 Literature Review

2.1 Job Demands-Resources Theory

The JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001) has matured into the JD-R theory. The current version of the JD-R theory states how working conditions influence employees and how employees can influence their working conditions (Bakker & Demerouti, 2018). The JD-R theory's central assumption is that besides the different working conditions, job characteristics are broadly categorized into job demands and job resources. Job demands initiate the health impairment process, undermine performance, and lead to exhaustion and burnout (Bakker & Demerouti, 2007). Job demands are further classified into hindering and challenging job demands (Van den Broeck et al., 2010). Challenging job demands, such as workload and job complexities, are like job resources and help employees perform well (Bakker & Demerouti, 2018). Job resources are motivational, does not cost energy, increase work meaning and work engagement, job-related learning, and improve performance (Bakker & Demerouti, 2018). Job resources are also beneficial in satisfying the employee's basic psychological needs (Deci et al., 2001) and buffer the negative impact of job demands on strain (Bakker & Demerouti, 2017). These job resources specifically influence motivation and work engagement in the presence of high job demands. JD-R theory further asserts that employees can influence their job design through job crafting by initiating a motivational process, activate a gain cycle of job/personal resources, work engagement and positive work behaviors. Based on these assumptions, this study argues that designing resourceful and challenging jobs can boost job crafting

behavior which initiates a motivational process, activate a spiral of resources that leads to sustainable employability. These relationships further strengthen in the presence of high job demands such as work uncertainty.

2.2 Job Crafting

The term job crafting first coined by [Wrzesniewski & Dutton \(2001\)](#), defining it as “the physical and cognitive changes individuals make in the task or relational boundaries of their work” ([Wrzesniewski & Dutton, 2001](#)). Scholars assert that this concept constrains job crafting to only three forms, i.e., job relationship, tasks, and work meaning ([Rogala & Cieslak, 2019](#)). Later, job crafting reconceptualized by [Tims & Bakker \(2010\)](#) and frames into the JD-R framework ([Bakker & Demerouti, 2007](#)). Job crafting is a specific form of proactive behavior ([Tims & Bakker, 2010](#)). Job crafting is defined as “the changes that employees may make to balance their job demands and job resources with their abilities and needs” ([Tims et al., 2012](#)). Employees make such alterations in their job characteristics to benefit from work engagement, reduced burnout, motivation and person-job fit, making the work more enjoyable and enriched ([Tims & Bakker, 2010](#); [Tims et al., 2012](#)). Job crafting by [Tims & Bakker \(2010\)](#) led the foundation of quantitative research ([Rudolph et al., 2017](#)).

Besides the development of literature, these two conceptualizations differ in important ways ([Zhang & Parker, 2019](#)). Altering job boundaries provides a way to increase work identity and work meaningfulness ([Wrzesniewski & Dutton, 2001](#)). Whereas altering job characteristics ([Tims & Bakker, 2010](#)) focuses on person-job fit, positive well-being and performance ([Zhang & Parker, 2019](#)). It is difficult to integrate both perspectives; however, research on each perspective continues to proceed separately. Recent meta-analysis and review studies mainly discuss the JD-R perspective of job crafting ([Lichtenthaler & Fischbach, 2019](#); [Rudolph et al., 2017](#); [Wang et al., 2016](#)). It shows that the JD-R perspective of job crafting dominates the literature due to several benefits for employees and organizations.

Further, this bottom-up job redesign approach brings strategic advantages for organizations ([Wang et al., 2016](#)) and supports organizational and employee sustainability ([Le Blanc, Demerouti, & Bakker, 2017](#)). Job crafting is not a one-time activity rather a continuous process ([Petrou et al., 2018](#)) (because employees may “re-create or craft jobs all the time” ([Wrzesniewski & Dutton, 2001](#))). Thus, employees can continuously develop their personal and professional skills, work engagement and cope with work challenges by optimizing their job demands and job resources. Job crafting is operationalized through four different dimensions ([Tims et al., 2012](#)): (1) increasing structural job resources (e.g., development opportunities, autonomy) (2) increasing social job resources (e.g., supervisory coaching and feedback, social support) (3) increasing challenging job demands (e.g., mastery, responsibility) (4) decreasing hindering job demands (e.g., negative emotions due to interactions with others).

2.3 Sustainable Employability

Sustainable employability is a complex and fuzzy concept ([van Harten et al., 2016](#)) due to varied definitions. Only [Van der Klink et al. \(2016\)](#) attempts to define it conceptually. Nevertheless, a provoke criticism by [Fleuren et al. \(2016\)](#) suggests a further refinement of the concept. Following [Fleuren et al. \(2016\)](#) argument, this study reconceptualizes and operationalizes this construct. Sustainable refers to being continuously employable during one’s professional life ([Thijssen et al., 2008](#)). Employability refers to the individual’s ability to retain the current job and have the ability to find a new one whenever needed ([Rothwell & Arnold, 2007](#)). The outcome-based approach on sustainable employability focuses on the factors contributing to the likelihood to continue working ([De Cuyper et al., 2014](#); [Le Blanc, Van der Heijden, & Van Vuuren, 2017](#); [Vanhercke et al., 2014](#)). In Western

Europe, it conceptualizes employees' ability to continue working whereas in the United States, it is about employees' motivation to continue working (Pak et al., 2019). However, both "motivation and ability to continue working" are among the core components for working long (Van der Heijden, 2012). Because only skills or competencies are not sufficient to remain employable during one's professional life, motivation is of utmost importance. Sustainable employability is defined as the extent to which an employee is able and motivated to continue working productively now and, in the future.

Ability to continue working operationalizes through workability, vitality/work engagement, and employability (Pak et al., 2019). However, vitality, work engagement, and workability conceptually overlap and are well-being variables that need to be consequences of sustainable employability (Berntson & Marklund, 2007; De Cuyper et al., 2012). Employability itself sufficiently addresses the ability to continue working. Employability includes the long-term perspective (Thijssen et al., 2008; Van Vuuren et al., 2011). Researchers propose that individuals who possess high perceived employability are more capable and efficiently handle the changing labor market demands (Vanhercke et al., 2014). Therefore, perceived employability provides a better way to operationalized the ability to continue working (Van der Heijden, 2012). Perceived employability is defined as "the individual's perception of his or her possibilities of obtaining and maintaining employment" (Vanhercke et al., 2014). Motivation is a broader notion, mainly conceptualized by examining employees' motivation at work and intentions to work until or after retirement age ((Kanfer et al., 2013). The last standpoint is most relevant to sustainable employability and motivation to continue working. Because with aging, motivation is the potential driver to keep and remains an employee at work (Kooij et al., 2017). Motivation is also a core component of most job design theories.

2.4 Job Crafting and Sustainable Employability

Job crafting is a socially innovative way' to achieve employee sustainability (Le Blanc, Demerouti, & Bakker, 2017). Job crafting contributes to sustainable employability in different ways (Demerouti, 2014; Le Blanc, Van der Heijden, & Van Vuuren, 2017). It supplements the top-down job redesign process to enhance a worker's performance and well-being. It provides employees with opportunities to redesign their jobs that best tailored their individual needs, thus improve task performance. It also privileges all types of employees (older, working parents and employees with health issues) to adjust their jobs according to their individual needs to retain and improve performance. Job crafting enables employees to maintain their proactivity and adaptability (Baik et al., 2018). According to JD-R theory, employees can influence their own job design through job crafting, which activates a gain cycle of job resources, work motivation, positive work behaviors and work engagement (Bakker & Demerouti, 2018).

Motivation and accumulation of job and personal resources are core components of the job crafting process. That directly contributes to employee's ability and motivation to continue working. When employees perceive opportunities in their career growth, they proactively craft vital job resources (Fried et al., 2007). By crafting a job, employees instigate a learning work environment that helps meet the current job requirements and professional development opportunities. Increasing social, structural and challenging job demands stimulates job-related knowledge, competencies and supervisor's feedback to help job crafters grow professionally. Indeed, scholars show such proactive job redesign initiatives are related to career and work-related outcomes (Akkermans & Tims, 2017; Plomp et al., 2019). The proactive initiatives for professional development and personal growth show employee willingness and adaptability towards changing job requirements to grasp future job opportunities. Because job-related skills, willingness to change, professional developments are among the significant predictors of perceived employability (Wittekind et al., 2010).

Such proactive efforts positively contribute to employment opportunities (van Harten et al., 2016). Some recent studies support these findings. For example, Akkermans & Tims (2017) show that expansion of job resources/demands triggers personal growth, increases individual ability, and positively related to perceived employability. In another study, Plomp et al. (2019) explore that increasing structural, social and challenging job demands are positively related to permanent employees' perceived external employability. In contrast, temporary workers maintain their perceived external employability by increasing structural job resources. Tims et al. (2012) findings also support our argument that job resources are positively related to employability. Thus proactive efforts to learn new skills and knowledge, up-to-date professional competencies by crafting jobs increase the likelihood of sustainable employability. Job crafting itself is a way to attain desirable work outcomes that partly overlap with employability (Tims et al., 2012). When employees aim to craft their jobs for personal growth, professional development and improve person-job fit, it will increase employee's ability and increase motivation to continue working. These findings are supported by Vanbelle et al. (2017) who showed that job crafting is positively related to employees' ability and motivation to continue working till the retirement age. Summarizing the above discussion, we may expect that job crafting positively relate to overall sustainable employability.

H_1 : Job crafting positively influence sustainable employability measured in the form of ability (H_{1a}) and motivation (H_{1b}) to continue working.

2.5 Employer Investments and Job Crafting

Job characteristics are the primary determinant of proactive behaviors (Ohly & Schmitt, 2017). More specifically, job resources positively and job demands positively or negatively link with proactive behaviors (Frese et al., 2007). Resourceful and challenging jobs create an active work environment leading to increase motivation, learning and development, and support for growth-oriented behaviors ((Vanbelle et al., 2017) and positively influences employee attitude and behavior (Nahrgang et al., 2011). According to JD-R theory, job resources increase work engagement, help employees achieve work goals, buffer the negative effects of job demands, and fulfill basic psychological needs. The JD-R theory further asserts that these resources' motivational potential provides support for employees' engagement in job crafting (Bakker & Demerouti, 2018).

Job autonomy refers to employees' control over tasks' execution (Bakker et al., 2004). Autonomy is a precondition to job crafting (Wrzesniewski & Dutton, 2001). The employer's discretion and freedom give confidence for effective decision-making about what to craft and when to craft. High autonomy/control on the execution of jobs will lead employees to engage in proactive behaviors (job crafting) because employees feel self-efficacious, have control over the work situations (Grant & Ashford, 2008; Parker et al., 2006). Such control in work situations provides necessary information and opportunities to adjust their job demands and resources as per individual needs, preferences and abilities (Tims et al., 2013). Workload, being a challenging job demands (LePine et al., 2005), helps employees to perform well and act like job resources (Bakker & Demerouti, 2018). It ensures goal attainment (Van den Broeck et al., 2010). Such challenging job demands may lead to the stimulation of favorable outcomes in the form of proactive behaviors (Ohly & Fritz, 2010; Ohly et al., 2010). When employees experience higher workloads, they are motivated to reduce those demands that cause hindrances and search for more resources to cope with such demands (Bakker & Demerouti, 2007). A meta-analysis study by Rudolph et al. (2017) and a study by Vanbelle et al. (2017) supports our argument that autonomy and workload positively contribute to promoting job crafting.

Further, high job resources and high job demands translate into active jobs (Karasek Jr, 1979). Employees experiencing active jobs engage in active problem solving, deal with job demands, mastery experiences and enhance individual learning and development capacity (Karasek, 1990). (Petrou

et al., 2012) examine that employees who experience active jobs (high autonomy, high work pressures) are engaged in seeking resources, seeking challenges, and reducing job demands. Therefore, we expect that employer investments in resourceful and challenging job demands are positively related to job crafting.

H_2 : Employer investments in the form of autonomy and workload is positively linked to job crafting.

2.6 Mediation of Job Crafting between Employer Investments and Sustainable Employability

We further suggest that job crafting mediates the relationship between the employer's investments and sustainable employability. Job design that privileges employees with motivation, learning and developmental opportunities and discretion/control over jobs can actively adjust their job demands and job resources according to individual preferences and needs. Resourceful and challenging jobs' motivational potential successfully engages employees in job crafting behaviors. The JD-R theory asserts that job crafting activates a gain cycle of job and personal resources, motivation and engagement at work (Bakker & Demerouti, 2018). Accumulation of job and personal resources contributes to professional development and growth and acquisition of skills and knowledge that meet the job market's current and future requirements. By optimizing job resources and job demands, employees can continuously learn job-related knowledge, cope with emerging work challenges and demands, and secure current employment and increase chance to secure a better employment.

A resourceful person makes further investments of these resources to accumulate new and more resources (Hobfoll, 1989). Job crafting adds to sustainable change-oriented behaviors (i.e., adaptive and proactive) (Baik et al., 2018) and perceived employability (Akkermans & Tims, 2017). Employees may utilize these adaptive strategies to balance their work environment and age-related changes regarding their goals and personal needs (Baltes & Dickson, 2001). Job crafting is an individual proactive optimization of job characteristics, work engagement, performance and effectual functioning at work (Tims et al., 2012). All these factors create an active work environment that increases employees' motivation to work long (Hengel et al., 2012) and the ability to continue working (Pak et al., 2019). Therefore, assuming that resourceful and challenging jobs boost job crafting, which in turn initiates a motivational process, facilitates the accumulation of resources that translate into employee's sustainable employability.

We further suggest that job crafting mediates the relationship between the employer's investments and sustainable employability. Job design that privileges employees with motivation, learning and developmental opportunities and discretion/control over jobs can actively adjust their job demands and job resources according to individual preferences and needs. According to JD-R theory, resourceful and challenging jobs' motivational potential and challenging jobs successfully engage employees in job crafting behaviors. The JD-R theory further asserts that job crafting activates a gain cycle of job and personal resources, motivation and engagement at work (Bakker & Demerouti, 2018). Accumulation of job and personal resources contributes to professional development and growth and acquisition of skills and knowledge that meet the job market's current and future requirements. By optimizing job resources and job demands, employees can continuously learn job-related knowledge and cope with emerging work challenges and demands, which enable them to secure current employment and increase chance to secure a better employment.

H_3 : Job crafting mediates the relationship between employer investments and sustainable employability.

2.7 Moderation of Work Uncertainty

In general, and more specifically, in the current pandemic, situation employees perform their routine tasks in entirely different ways as they use to. Almost every employee needs to redesign their jobs frequently to perform their daily activities. A resourceful and challenging job boost their self-initiated proactive and volunteer behavior towards job design. Nevertheless, they are also facing uncertainty or variabilities while performing their routine activities. This variability may arise due to a shortage of resources, access to technology, rising customer demands, or variation occurs during inputs/outputs of results (Cumplings & Blumberg, 1987). These variabilities and “lack of predictability of work tasks and work processes” in job design context referred to as work uncertainty. High work uncertainty increases employees’ control on task execution, and decision-making enables them to learn about the changes and challenges in task requirement that leads to improved job performance. In contrast, when uncertainty is low, increased control has little effect because it lowers down learning chances. Therefore, it challenges the long-held assumption concerning empowerment or increased control is a “near-universal recipe for organizational success... is incorrect” (Wall et al., 2002).

Employees perceived such job demands, specifically in the COVID-19 situation, as a challenge. Teachers are using digital platforms to conduct their regular lectures. Doctors are treating patients virtually, or in general, employees are performing their jobs and attending meetings while sitting on beds never happen in our organizational life. Such job demands that provide learning opportunities, control on the execution of tasks act as challenging job demands. This study proposes that when employees experience a high work uncertainty, the relationship between employer investments and job crafting further strengthens and then translates into sustainable employability. Employees perceive a higher level of job autonomy and workload granted by employers, and experiencing higher levels of work uncertainty results in most predictive of job crafting and its associated outcomes (Leach et al., 2013). Therefore, this study assumes that work uncertainty moderates the indirect employers’ investments in sustainable employability through the mediation of job crafting.

H_4 : Work uncertainty moderates the indirect effects of employer investments in the form of autonomy (H_{4a}) and workload (H_{4b}) on sustainable employability through the mediation of job crafting such that its effects are stronger when work uncertainty is higher as compared to lower.

2.8 Conceptual Framework

Figure 1 provides the model to depict relationships between the studied variables along with the proposed hypothesis.

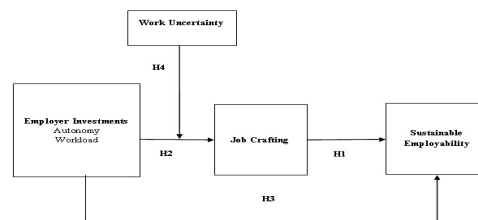


Figure 1: A Moderated Mediation Conceptual Model

3 Methodology

A positivist philosophy and deductive approach were adopted. This study is quantitative and explanatory; therefore, the survey research strategy is most suitable. It allows researchers to measure the studied variables quantitatively. Therefore, a self-administered questionnaire was used to collect data from knowledge workers to validate the proposed theoretical framework. This study is cross-sectional, and data was collected in two-time lag (two weeks). Literature suggests that professionals/knowledge workers (Armstrong & Taylor, 2020) performing dynamic, complex and non-routine jobs are more commonly engaged in job crafting (Peeters et al., 2013). Therefore, two public and private, each from tertiary care teaching hospitals and universities in Lahore, Punjab of Pakistan, were randomly selected. Most of the renowned and ancient universities and tertiary care hospitals are located in this city.

The temporal separation, data from two different sources, using validated scales, reverse coding for some items, and measuring predictors and criterion variables in different time lags are the remedies to overcome procedural biases and statistical solutions (P. M. Podsakoff et al., 2012). Two separate surveys were conducted with an interval of two weeks. The reason being, still there is no thumb rule for setting a time interval between surveys in general (Taris & Kompier, 2014), and even no evidence in job crafting literature (Dubbelt et al., 2019). During this interval, employees have at least some opportunities to craft (Tims et al., 2015). The survey questionnaire at Time 1 includes independent variables and a moderating variable while at Time 2 mediating, and the outcome variables measured. A soft and hard copy of the self-administered questionnaire was used to collect data. Therefore, a delivery and collection method was employed for data collection.

During the first wave, 700 questionnaires were distributed, and only 590 responses were received back. After two weeks, we again sent the second survey to 590 respondents and received only complete 533 responses. The email address and a unique identification code consisting of respondent birth date, birth month, and frequently used mobile numbers (last four digits) were sufficient to match the responses. Neglecting the incomplete and mismatched responses, finally, 483 responses were selected for data collection. The overall response rate was 69%, which is relatively higher than other studies in management sciences using a time lag of two or more weeks. The final sample includes 275 (54%) male and 237 (46%) females respondents. Participant ration from the education and health-care sector were approximate 60% and 40%, respectively. Female employment in selected sectors is comparatively high as compared to the other sectors of Pakistan.

3.1 Variables and Measures

Job Crafting is measured by using the JCS.Scale developed by Tims et al. (2012) and is widely used in quantitative research (Rudolph et al., 2017). JCS comprised of 21 items further divided into four dimensions and thus constitute a second-order latent variable. Increasing structural job resources consist of five items with a sample item "I try to develop myself professionally." Increasing social job resources include five items with the sample item "I ask others for feedback on my job performance." Increasing challenging job demands comprised of five items and sample items include "When an interesting project comes along, I offer myself proactively as project co-worker." Finally, decreasing hindering demands contains six items, and a sample item is: "I make sure that my work is mentally less intense." Items were rated by the respondents using a "5-point Likert type scale ranging from "strongly disagree to strongly agree" was used to measure responses against these variables. The job crafting scale's reliability was relatively higher than the Cronbach Alpha of 0.70 (Nunnally, 1978). The overall reliability of this construct is 0.79. Following the CFA results (confirmatory

factor analysis), three items were deleted due to poor factor loadings. Finally, eighteen selected items ensured conceptual validity with appropriate factor loadings.

Autonomy was evaluated with a three-item scale suggested in the job content instrument (Bakker et al., 2003). The sample item includes, “I can decide myself how I execute my work,” and the respondent will rate these items using a 5-point scale, 1=never, and 5=always. Values of the Cronbach Alpha was 0.92, which shows high reliability for this scale. Workload was assessed using a four items scale using a 5-point scale Likert scale, 1=never and 5=always. The scale refers to demanding aspects of a job. For example, an item in the scale, “I have too much work to do?” The value of Cronbach Alpha for this variable was 0.84 shows high reliability.

Sustainable Employability comprised of motivation to continue working (Hengel et al., 2012) and the ability to continue working (Akkermans et al., 2013). “Motivation to continue working” consists of two items; “I am willing to continue work until the maximum retirement age” and “I am able to continue working until the maximum retirement age.” In contrast, the ability to continue working was measured using perceived employability. Based on De Cuyper & De Witte (2008) scale, perceived employability consisting of eight items representing four represents the internal. In contrast, the other four items were meant to measure external employability. Example items are “I would find another job rather quickly if I searched for it,” and “In my current job I am capable of doing a better function.” Motivation to continue working is measured using two items, an example being “I am willing to continue work until the maximum retirement age.” Thus, we expect a second-order factor structure as three different dimensions were used to measure sustainable employability. The overall reliability of this construct was 0.89.

Information on demographic variables such as gender, marital status, age, formal education, total experience, organizational tenure and sector were also collected. We further propose three control variables, namely, gender, age, tenure. These three variables may influence crafting and sustainable employability variables. The selected control variables were used similarly as it was used in the previous studies (Akkermans & Tims, 2017; Akkermans et al., 2019; Slemp et al., 2015; Van der Klink et al., 2016). The reason being is that these variables may significantly affect job crafting and sustainable employability.

3.2 Analysis Strategy

To identify measurement errors (if any), reliability, convergent validity, discriminant validity for all the studied variables were calculated. Gaskin & Lim (2018) for AMOS was used after performing the CFA, which provides several measures in one click such as average variance extracted (AVE), maximum shared variance (MSV), critical ratio (CR), correlation matrix, square root of AVE, and Values for Cronbach Alpha. Preliminary data analysis, such as data screening, descriptive and inferential statistics, were performed through IBM SPSS 24. Further, to determine the relationship between the studied variables, there is a need to perform the first CFA and then SEM technique (Anderson & Gerbing, 1988). The goodness of fit of studied models, measures along their cutoff values are given in table 1.

Table 1: Model Fit Indices

Measure	Threshold	Interpretation
CMIN/DF	Between 1 and 3	Excellent
CFI	>0.90	Acceptable
GFI	>0.90	Acceptable
TLI	>0.90	Acceptable
RMSEA	<0.08	Acceptable

*Source:(Hu & Bentler, 1999)

4 Results and Analysis

4.1 Descriptive Analysis

The study results reported in table 2 show all the measured well meet the criteria and thus provide support for the reliability and validity of scales used. The convergent validity (CR) of all the constructs is more than the threshold value 0.50, and maximum shared variance (MSV) is less than the average variable explained (AVE) that verifies the discriminant validity of the studied construct. Table 2 provides detailed results on these variables. Furthermore, the composite reliability of all the constructs is more than 0.70 (Nunnally, 1978), and the overall reliability of the data was 0.92.

Table 2: Scale Reliability and Validity

	Items	Alpha	AVE	MSV	CR
Autonomy	3	0.79	0.69	0.05	0.82
Workload	4	0.71	0.51	0.05	0.72
Job Crafting	19	0.87	0.6	0.26	0.86
Sustainable Employability	10	0.82	0.62	0.24	0.73
Work Uncertainty	9	0.85	0.59	0.04	0.81

The mean, standard deviation, skewness, kurtosis, correlations and reliabilities of the studied variable reported in table 3. Result in the table shows; respondents were reasonably optimistic about the autonomy (3.47), workload (3.50), job crafting (3.83) and sustainable employability (3.68). Data also highlight the significant variance among variables (SDs between 0.42 and 0.97). No normality issues arise as skewness and kurtosis values were in the prescribed range. Moreover, no issues regarding multicollinearity were reported in bivariate correlation. Autonomy and workload have no association because the workload and job resources are distinct job characteristics (Bakker & Demerouti, 2007, 2017). A positive and significant association is observed among other variables. Autonomy positively associated with job crafting ($r=0.188$, $p<0.01$), and sustainable employability ($r=0.224$, $p<0.01$), workload and job crafting ($r=0.132$, $p<0.01$), workload and sustainable employability ($r=0.09$, $p<0.01$), and job crafting and sustainable employability ($r=0.456$, $p<0.01$). The correlation coefficients were also in the suggested direction.

Table 3: Descriptive and Inferential Statistics

	Mean	SD	Skewness	Kurtosis	1	2	3	4	5
1. ATM	3.47	0.97	-0.55	-0.27	0.83				
2. WKL	3.5	0.77	-0.26	-0.06	0.049	0.714			
3. JCRAFT	3.83	0.42	-0.63	2.03	.188**	.132**	0.765		
4. SEMP	3.68	0.48	-0.76	1.58	.224**	.090*	.456**	0.787	
5. WKU	4.18	0.15	1.29	-0.15	0.159*	0.027	0.192**	0.183*	0.788

*** p< 0.01, *p<0.05 SD = standard deviation, ATM=Autonomy, WKL=Workload, JCRAFT=Job Crafting, SEMP=Sustainable Employability, WKU=Work Uncertainty

4.2 Measurement Model

Three different models were developed and compared to check the model fit measures and dimensionality of our hypothesized models for this study. First, for the one-factor model, all items were loaded on a single latent variable. Then we construct a two-factor, where items of respective variables were loaded on each studied variable such as workload, autonomy, job increasing social job resources and perceived employability. Due to poor loading, three items from job crafting and one item from autonomy were deleted. Finally, we extended the two-factor model by including job crafting and sustainable employability. Job crafting is a second-order latent variable comprise of a factor structure with four dimensions and sustainable employability with three dimensions. We expect the third model that represents the main studied variables best fits the observed data. Table 4 shows the CFA results for the three different models, and the hypothesized measurement model provided the best good-fit indices (Bentler & Chou, 1987). Further, we also run a chi-square (χ^2) difference test that provides statistical support in selecting the hypothesized model with the best model-fit indices compare to the other models.

Table 4: CFA and Results of Model Comparison

	χ^2	Df	$\Delta\chi^2$ df	CFI	TLI	RMSEA
Measurement Model 1	4500.27	779		0.341	0.306	0.097
Measurement Model 2	1497.571	724	3002. 699 (55)*	0.863	0.845	0.046
Measurement Model 3	1205.739	703	291.832 (21)*	0.909	0.899	0.037

*p<0.001

4.3 Hypothesis Testing

SEM approach was used to conduct the path analysis. Results obtained from this technique is given in table 5. The regression coefficient for ATM and JCRAFT was ($\beta=0.183$, $p<0.001$), providing us with evidence that these two relationships are positive and statistically significant. It shows that if autonomy (ATM) increases by one-unit, job crafting (JCRAFT) increases at the rate of 0.183 units, showing high autonomy causes an increase in job crafting. Relationships between workload (WKL) and job crafting (JCRAFT) were observed ($\beta=0.127$, $p<0.05$) was positive and statistically significant. Statistically, we observed that an increase in workload also causes to increase in job crafting behavior. These two results show that employer investments significantly and positively contribute to promoting job crafting.

Table 5: Summary of Direct and Indirect Effects

Relationships	Estimates	95% CI	Results
ATM → JCRAFT	0.231***	(0.095,0.269)	H2 Supported
WKL → JCRAFT	0.177**	(0.049,0.205)	
JCRAFT → ATCW	0.480***	(0.335, 0.613)	H1a Supported
JCRAFT → MTCW	0.710***	(0.533, 0.910)	H1b Supported
JCRAFT → SEMP	0.688***	(0.332, 0.521)	
ATM → SEMP	0.170*	(0.021, 0.142)	
WKL → SEMP	0.27 (ns)	(-.054, 0.072)	
ATM x WKU → JCRAFT	0.340**	(0.255, 0.399)	
WKL x WKU → JCRAFT	0.341***	(0.262, 0.420)	
ATM → JCRAFT → SEMP	0.153**	(0.023, 0.097)	H3 Supported
WKL → JCRAFT → SEMP	0.118**	(0.024, 0.109)	
ATM x WKU → JCRAFT → SEMP	0.129***	(0.011,0.021)	H4a Supported
WKL x WKU → JCRAFT → SEMP	0.145***	(0.012,0.023)	H4b Supported

***p < 0.001, ** p < 0.01, *p < 0.05, ATM = Autonomy, WKL = Workload, JCRAFT = Job Crafting, MTCW = Motivation to continue working, ATCW = Ability to continue working, WKU= Work Uncertainty,SEMP = Sustainable employability, ns = not significant.

A positive relationship between JCRAFT and ability to continue working (ATCW) and motivation to continue working (MTCW) was observed ($\beta = 0.48$, $p < 0.001$) and ($\beta = 0.71$, $p < 0.001$), respectively. This shows that if job crafting increases by one unit, ATCW and MTCW increase at 48 and 71 units, respectively. This statistical evidence supports justifying our second hypothesis that altering job demands and job resources significantly and positively contributes to sustainable employability in the form of ability and motivation to continue working.

Autonomy was positively and significantly related to sustainable employability (SEMP) ($\beta = 0.17$, $p < 0.05$). Table 5 also indicated that ATM-JCRAFT-SEMP, showing a partial mediation, thus supporting hypothesis H3. Furthermore, workload (WKL) does not provide a significant positive relationship with sustainable employability, but job crafting positively and significantly moderate the relationships between WKL and SEMP, which shows a full mediation and thus supporting hypothesis H4. Finally, we proposed that workuncertainty moderate the indirect effects of resourceful and challenging jobs (autonomy and workload) on sustainable employability through the mediation of job crafting. To proceed for moderated mediation analysis, we test the interaction of work uncertainty and autonomy, work uncertainty and workload and found these two interactions are statistically significant related to job crafting with ($\beta = 0.340$, $p < 0.01$) and ($\beta = 0.341$, $p < 0.001$) and were positive.

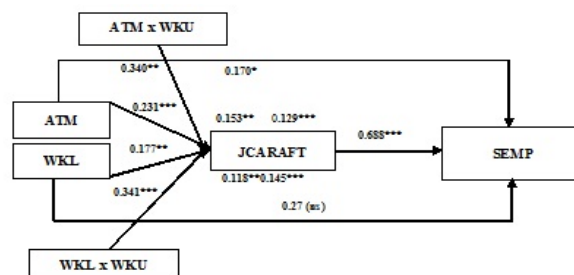


Figure 2: Measurement Model

This shows that the indirect effects of autonomy and workload on sustainable employability through the mediation mechanism of job crafting strengthen in the presence of high levels of work uncertainty, which was 0.129 (95% CI (0.011,0.021)) and 0.145 (95% CI (0.012,0.023)) respectively. The contingency of work uncertainty strengthens this indirect effect as with a 1-unit increase in autonomy and workload. Sustainable employability increased by 0.129 and 0.145 through the moderated mediation of job crafting and work uncertainty. From these observations, we can say that in the presence of high work uncertainty, the effect of resourceful and challenging jobs on job crafting was also high, which ultimately translated into sustainable employability. The moderated mediation effects were also plotted to gain more insights into these relationships. Clearly, it shows that employer investment observed through autonomy and workload with job crafting become stronger when work uncertainty was high than it was low.

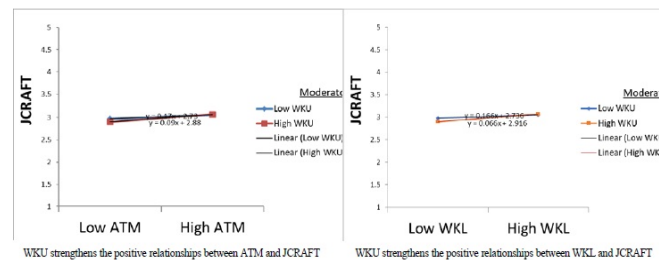


Figure 3: Moderation of Work Uncertainty

4.4 Discussion and Conclusion

The main objective was to examine how resourceful and challenging jobs, promote job crafting and how the individual employee contributes to their sustainable employability. Further, we also intend to investigate the role of boundary conditions in facilitating/mitigating job crafting. First of all, resourceful and challenging jobs create an active work environment providing job discretion and opportunities for learning and development is motivational and thus stimulate job crafting behaviors. Active participants at jobs are more involved in increasing their job resources and less in reducing their job demands (Petrou et al., 2012). Employees in active jobs try to challenge job demands to accumulate resources further. Autonomy and workload are the primary determinant of proactive behaviors (Bindl & Parker, 2010; Ohly & Schmitt, 2017). Job crafting is also a specific form of proactive behaviors (Tims & Bakker, 2010). Meta-analytic study confirms that autonomy and workload are positively related to job crafting (Rudolph et al., 2017). Results also confirm a positive and significant relationship between resourceful and challenging jobs and job crafting. Thus, providing us strong evidence that employer investments significantly contribute to facilitate all employees to involve in job crafting irrespective of the employee's personality traits or their individual differences.

Secondly, we propose that sustainable employability is the motivational outcome of job crafting. Results of this study show that job crafting is positively related to sustainable employability. Job crafting is a continuous process, and by crafting jobs, employees can continuously build their desired job/personal resources. The JD-R theory also asserts that job crafting activates a gain cycle of resources, increased motivation, and work engagement (Bakker & Demerouti, 2018). Akkermans & Tims (2017) provide support for positive relationships between job crafting perceived employability. Another study from Vanbelle et al. (2017) confirms a positive relationship between job crafting and

motivation to continue working. Together, this study's results support our hypothesis that job crafting positively relates to sustainable employability.

Thirdly, based on JD-R theory, we examine whether job crafting acts as a process variable between employer investments and sustainable employability. Results show that job crafting partially mediates the relationships between workload and sustainable employability. However, full mediation occurs between autonomy and sustainable employability. Finally, results support the moderating role of work uncertainty. Thus, providing evidence that when work uncertainty is high compared to low employees will be more involved in job crafting, which boosts sustainable employability. Therefore, designing resourceful and challenging jobs provides a way to promote sustainable employability. High work uncertainty further boosts the job crafting process. These results also offer us insights that job crafting contributes to sustainable employability while maintaining their health and well-being (increased work engagement and reduced burnout). The findings of this study also validate [Van der Klink et al. \(2016\)](#) argument that sustainable employability refers to employees' ability and willingness to continue working throughout their professional lives while maintaining their well-being and health.

4.5 Practical Implications

This study tests and expands the JD-R theory by showing that resourceful and challenging job demands initiated a motivational mechanism where job crafting being a process variable and sustainable employability being an outcome of this process. This motivation causes to induce a gain-cycle of job resources through job crafting, which leads to improved employee's well-being and performance outcomes. Designing resourceful and challenging jobs by the employers provides a pool of job resources that provides resilience, feelings of discretion, control on jobs, and consequently, activate motivation to engage in job crafting. This study also confirms that when employees perceive job demands as a challenge, they voluntarily participate in such demands and expand their social and structural job resources ([Tims et al., 2012](#)). By summarizing, we highlighted that employer investments through job design provide sufficient resources to accomplish tasks (i.e., work motivation) translating into proactive behaviors (i.e., job crafting), which boost employee's ability and motivation to continue working. Managers and professionals can benefit from this proactive behavior toward job design by designing resourceful and challenging jobs. Therefore, employers' investments through these job resources in job crafting lead to sustainable employability while keeping employees motivated and healthy.

4.6 Conclusions, Limitations and Future Directions

Despite these contributions to the existing body of knowledge, a few limitations need to address that nurture this research. First, this study's longitudinal replications provide more useful insights and provide more clarity on patterns not displayed within a shorter time interval. Secondly, data from other service sectors and manufacturing sectors help to generalize the results. Data from similar sectors from other developing countries in Asia with the same cultural norms and behavioral patterns may lead to generalizability. Thirdly, examining each dimension of work uncertainty provides further clarity about the moderating impact. Future studies may also investigate the impact of work uncertainty on job crafting-sustainable employability relationships. Other boundary conditions such as calendar age, life-span age, functional age, and organizational age ([Le Blanc, Van der Heijden, & Van Vuuren, 2017](#)) may be applied to examine the proposed relationships. This study only considers the resourceful and challenging jobs as antecedents; however, other contextual variables such as managerial support, quality of workplace relationships that may trigger job crafting behaviors also needs to be examined in future studies.

References

- Akkermans, J., Brenninkmeijer, V., Huibers, M., & Blonk, R. W. (2013). Competencies for the contemporary career: Development and preliminary validation of the career competencies questionnaire. *Journal of Career Development, 40*(3), 245–267.
- Akkermans, J., & Tims, M. (2017). Crafting your career: How career competencies relate to career success via job crafting. *Applied Psychology, 66*(1), 168–195.
- Akkermans, J., Tims, M., Beijer, S., & De Cuyper, N. (2019). Should employers invest in employability? examining employability as a mediator in the hrm–commitment relationship. *Frontiers in Psychology, 10*, 717.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological bulletin, 103*(3), 411.
- Armstrong, M., & Taylor, S. (2020). *Armstrong's handbook of human resource management practice*. Kogan Page Publishers.
- Baik, S. J., Song, H.-D., & Hong, A. J. (2018). Craft your job and get engaged: Sustainable change-oriented behavior at work. *Sustainability, 10*(12), 4404.
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of managerial psychology, 22*(3), 309–328.
- Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: taking stock and looking forward. *Journal of occupational health psychology, 22*(3), 273.
- Bakker, A. B., & Demerouti, E. (2018). Multiple levels in job demands-resources theory: Implications for employee well-being and performance. *Handbook of well-being*.
- Bakker, A. B., Demerouti, E., Taris, T. W., Schaufeli, W. B., & Schreurs, P. J. (2003). A multi-group analysis of the job demands-resources model in four home care organizations. *International Journal of stress management, 10*(1), 16–38.
- Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management, 43*(1), 83–104.
- Baltes, B. B., & Dickson, M. W. (2001). Using life-span models in industrial-organizational psychology: The theory of selective optimization with compensation. *Applied Developmental Science, 5*(1), 51–62.
- Bentler, P. M., & Chou, C.-P. (1987). Practical issues in structural modeling. *Sociological methods & research, 16*(1), 78–117.
- Berntson, E., & Marklund, S. (2007). The relationship between perceived employability and subsequent health. *Work & Stress, 21*(3), 279–292.
- Bindl, U. K., & Parker, S. K. (2010). 32 feeling good and performing well? psychological engagement and positive behaviors at work. *Handbook of employee engagement: Perspectives, issues, research and practice, 385–398*.

- Bindl, U. K., Unsworth, K. L., Gibson, C. B., & Stride, C. B. (2019). Job crafting revisited: Implications of an extended framework for active changes at work. *Journal of Applied Psychology, 104*(5), 605.
- Cummings, T., & Blumberg, M. (1987). Advanced manufacturing technology and work design: Towards a theoretical framework. *Journal of Organizational Behavior, 11*(3), 201-219.
- Deci, E. L., Ryan, R. M., Gagné, M., Leone, D. R., Usunov, J., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former eastern bloc country: A cross-cultural study of self-determination. *Personality and social psychology bulletin, 27*(8), 930-942.
- De Cuyper, N., & De Witte, H. (2008). Gepercipieerde kans op een baan versus een betere baan: relaties met arbeidstevredenheid en welzijn. *Gedrag en Organisatie, 21*(4), 474-492.
- De Cuyper, N., Mäkikangas, A., Kinnunen, U., Mauno, S., & Witte, H. D. (2012). Cross-lagged associations between perceived external employability, job insecurity, and exhaustion: Testing gain and loss spirals according to the conservation of resources theory. *Journal of Organizational Behavior, 33*(6), 770-788.
- De Cuyper, N., Sulea, C., Philippaers, K., Fischmann, G., Iliescu, D., & De Witte, H. (2014). Perceived employability and performance: moderation by felt job insecurity. *Personnel Review, 43*(4), 536-592.
- Demerouti, E. (2014). Design your own job through job crafting. *European Psychologist, 19*(4), 237-247.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied psychology, 86*(3), 499.
- Docherty, P., Kira, M., & Shani, A. R. (2008). What the world needs now is sustainable work systems. In *Creating sustainable work systems* (pp. 27-48). Routledge.
- Dubbelt, L., Demerouti, E., & Rispens, S. (2019). The value of job crafting for work engagement, task performance, and career satisfaction: longitudinal and quasi-experimental evidence. *European Journal of Work and Organizational Psychology, 28*(3), 300-314.
- Fleuren, B. P., de Grip, A., Jansen, N. W., Kant, I., & Zijlstra, F. R. (2016). Critical reflections on the currently leading definition of sustainable employability. *Scandinavian journal of work, environment & health, 42*(6), 557-560.
- Forrier, A., Verbruggen, M., & De Cuyper, N. (2015). Integrating different notions of employability in a dynamic chain: The relationship between job transitions, movement capital and perceived employability. *Journal of Vocational Behavior, 89*, 56-64.
- Frese, M., Garst, H., & Fay, D. (2007). Making things happen: Reciprocal relationships between work characteristics and personal initiative in a four-wave longitudinal structural equation model. *Journal of applied psychology, 92*(4), 1084.
- Fried, Y., Grant, A. M., Levi, A. S., Hadani, M., & Slowik, L. H. (2007). Job design in temporal context: A career dynamics perspective. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 28*(7), 911-927.

- Gaskin, J., & Lim, J. (2018). Multigroup analysis, amos plugin. *Gaskination's StatWiki*.
- Grant, A. M., & Ashford, S. J. (2008). The dynamics of proactivity at work. *Research in organizational behavior*, 28, 3–34.
- Grant, A. M., Parker, S., & Collins, C. (2009). Getting credit for proactive behavior: Supervisor reactions depend on what you value and how you feel. *Personnel Psychology*, 62(1), 31–55.
- Grant, A. M., & Parker, S. K. (2009). 7 redesigning work design theories: the rise of relational and proactive perspectives. *Academy of Management annals*, 3(1), 317–375.
- Hengel, K. M. O., Blatter, B. M., Geuskens, G. A., Koppes, L. L., & Bongers, P. M. (2012). Factors associated with the ability and willingness to continue working until the age of 65 in construction workers. *International archives of occupational and environmental health*, 85(7), 783–790.
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American psychologist*, 44(3), 513.
- Kanfer, R., Beier, M. E., & Ackerman, P. L. (2013). Goals and motivation related to work in later adulthood: An organizing framework. *European Journal of Work and Organizational Psychology*, 22(3), 253–264.
- Karasek, R. (1990). *Healthy work*. New York, Basic Books.
- Karasek Jr, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative science quarterly*, 285–308.
- Kim, H., Im, J., & Qu, H. (2018). Exploring antecedents and consequences of job crafting. *International Journal of Hospitality Management*, 75, 18–26.
- Kim, H., Im, J., Qu, H., & NamKoong, J. (2018). Antecedent and consequences of job crafting: an organizational level approach. *International Journal of Contemporary Hospitality Management*, 30(3), 1863–1881.
- Kooij, D. T., Tims, M., & Akkermans, J. (2017). The influence of future time perspective on work engagement and job performance: the role of job crafting. *European Journal of Work and Organizational Psychology*, 26(1), 4–15.
- Leach, D., Hagger-Johnson, G., Doerner, N., Wall, T., Turner, N., Dawson, J., & Grote, G. (2013). Developing a measure of work uncertainty. *Journal of occupational and organizational psychology*, 86(1), 85–99.
- Le Blanc, P. M., Demerouti, E., & Bakker, A. B. (2017). *Better? job crafting for sustainable employees and organizations. an introduction to work and organizational psychology: An international perspective* (Vol. 48). Hoboken, New Jersey: John Wiley.
- Le Blanc, P. M., Van der Heijden, B. I., & Van Vuuren, T. (2017). “i will survive” a construct validation study on the measurement of sustainable employability using different age conceptualizations. *Frontiers in psychology*, 8, 1690.
- Lee, J. Y., & Lee, Y. (2018). Job crafting and performance: Literature review and implications for human resource development. *Human Resource Development Review*, 17(3), 277–313.

- LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor–hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of management journal*, 48(5), 764–775.
- Lichtenthaler, P. W., & Fischbach, A. (2019). A meta-analysis on promotion-and prevention-focused job crafting. *European Journal of Work and Organizational Psychology*, 28(1), 30–50.
- Nahrgang, J. D., Morgeson, F. P., & Hofmann, D. A. (2011). Safety at work: a meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes. *Journal of applied psychology*, 96(1), 71.
- Niessen, C., Weseler, D., & Kostova, P. (2016). When and why do individuals craft their jobs? the role of individual motivation and work characteristics for job crafting. *human relations*, 69(6), 1287–1313.
- Nunnally, J. C. (1978). An overview of psychological measurement. In *Clinical diagnosis of mental disorders* (pp. 97–146). Springer.
- Ohly, S., & Fritz, C. (2010). Work characteristics, challenge appraisal, creativity, and proactive behavior: A multi-level study. *Journal of Organizational Behavior*, 31(4), 543–565.
- Ohly, S., & Schmitt, A. (2017). *Work design and proactivity*. Routledge New York.
- Ohly, S., Sonnentag, S., Niessen, C., & Zapf, D. (2010). Diary studies in organizational research. *Journal of Personnel Psychology*, 9(2), 79–93.
- Oldham, G. R., & Fried, Y. (2016). Job design research and theory: Past, present and future. *Organizational Behavior and Human Decision Processes*, 136, 20–35.
- Pak, K., Kooij, D. T., De Lange, A. H., & Van Veldhoven, M. J. (2019). Human resource management and the ability, motivation and opportunity to continue working: A review of quantitative studies. *Human Resource Management Review*, 29(3), 336–352.
- Parker, S. K., Williams, H. M., & Turner, N. (2006). Modeling the antecedents of proactive behavior at work. *Journal of applied psychology*, 91(3), 636.
- Peeters, M. C., De Jonge, J., & Taris, T. W. (2013). *An introduction to contemporary work psychology*. John Wiley & Sons.
- Petrou, P., Demerouti, E., Peeters, M. C., Schaufeli, W. B., & Hetland, J. (2012). Crafting a job on a daily basis: Contextual correlates and the link to work engagement. *Journal of Organizational Behavior*, 33(8), 1120–1141.
- Petrou, P., Demerouti, E., & Schaufeli, W. B. (2018). Crafting the change: The role of employee job crafting behaviors for successful organizational change. *Journal of Management*, 44(5), 1766–1792.
- Plomp, J., Tims, M., Khapova, S. N., Jansen, P. G., & Bakker, A. B. (2019). Psychological safety, job crafting, and employability: A comparison between permanent and temporary workers. *Frontiers in psychology*, 10, 974.

- Podsakoff, N. P., LePine, J. A., & LePine, M. A. (2007). Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: a meta-analysis. *Journal of applied psychology, 92*(2), 438–454.
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual review of psychology, 63*, 539–569.
- Rogala, A., & Cieslak, R. (2019). Positive emotions at work and job crafting: Results from two prospective studies. *Frontiers in Psychology, 10*, 2786.
- Rothwell, A., & Arnold, J. (2007). Self-perceived employability: Development and validation of a scale. *Personnel review, 36*(1), 23–41.
- Rudolph, C. W., Katz, I. M., Lavigne, K. N., & Zacher, H. (2017). Job crafting: A meta-analysis of relationships with individual differences, job characteristics, and work outcomes. *Journal of Vocational Behavior, 102*, 112–138.
- Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the job demands-resources model: Implications for improving work and health. In *Bridging occupational, organizational and public health* (pp. 43–68). Springer.
- Shin, Y., Hur, W.-M., & Choi, W.-H. (2020). Coworker support as a double-edged sword: A moderated mediation model of job crafting, work engagement, and job performance. *The International Journal of Human Resource Management, 31*(11), 1417–1438.
- Slemp, G. R., Kern, M. L., & Vella-Brodrick, D. A. (2015). Workplace well-being: The role of job crafting and autonomy support. *Psychology of Well-being, 5*(1), 1–17.
- Smith, V. (2010). Enhancing employability: Human, cultural, and social capital in an era of turbulent unpredictability. *Human relations, 63*(2), 279–300.
- Taris, T. W., & Kompier, M. A. (2014). *Cause and effect: Optimizing the designs of longitudinal studies in occupational health psychology*. Taylor & Francis.
- Thijssen, J. G., Van der Heijden, B. I., & Rocco, T. S. (2008). Toward the employability—link model: current employment transition to future employment perspectives. *Human Resource Development Review, 7*(2), 165–183.
- Tims, M., & Bakker, A. B. (2010). Job crafting: Towards a new model of individual job redesign. *SA Journal of Industrial Psychology, 36*(2), 1–9.
- Tims, M., Bakker, A. B., & Derks, D. (2012). Development and validation of the job crafting scale. *Journal of vocational behavior, 80*(1), 173–186.
- Tims, M., Bakker, A. B., & Derks, D. (2013). De job demands-resources benadering van job crafting. *Gedrag & Organisatie, 26*(1), 16–31.
- Tims, M., Bakker, A. B., & Derks, D. (2015). Job crafting and job performance: A longitudinal study. *European Journal of Work and Organizational Psychology, 24*(6), 914–928.

- Vanbelle, E., Van Den Broeck, A., & De Witte, H. (2017). Job crafting: Autonomy and workload as antecedents and the willingness to continue working until retirement age as a positive outcome. *Psihologia Resurselor Umane, 15*(1), 25–41.
- Van den Broeck, A., De Cuyper, N., De Witte, H., & Vansteenkiste, M. (2010). Not all job demands are equal: Differentiating job hindrances and job challenges in the job demands–resources model. *European journal of work and organizational psychology, 19*(6), 735–759.
- Van der Heijden, B. (2012). 'als het getij verloopt, verzet men de bakens'. duurzaam inzetbaarheidsbeleid als onderdeel van strategisch hrm.
- Van der Klink, J. J., Bültmann, U., Burdorf, A., Schaufeli, W. B., Zijlstra, F. R., Abma, F. I., ... Van der Wilt, G. J. (2016). Sustainable employability—definition, conceptualization, and implications: a perspective based on the capability approach. *Scandinavian journal of work, environment & health, 42*(1), 71–79.
- van Harten, J., Knies, E., & Leisink, P. (2016). Employer's investments in hospital workers' employability and employment opportunities. *Personnel Review*.
- Vanhercke, D., De Cuyper, N., Peeters, E., & De Witte, H. (2014). Defining perceived employability: a psychological approach. *Personnel Review, 43*(4), 592–605.
- Van Vuuren, T., Caniëls, M., & Semeijn, J. (2011). Een leven lang leren en duurzame inzetbaarheid (lifelong learning and sustainable employability). *Gedrag en Organisatie, 24*(4), 356–373.
- Wall, T. D., Cordery, J. L., & Clegg, C. W. (2002). Empowerment, performance, and operational uncertainty: A theoretical integration. *Applied Psychology, 51*(1), 146–169.
- Wang, H., Demerouti, E., & Bakker, A. B. (2016). *A review of job crafting research. proactivity at work: Making things happen in organizations.* (pp. 77–102). Taylor & Francis.
- Wittekind, A., Raeder, S., & Grote, G. (2010). A longitudinal study of determinants of perceived employability. *Journal of Organizational Behavior, 31*(4), 566–586.
- Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of management review, 26*(2), 179–201.
- Zhang, F., & Parker, S. K. (2019). Reorienting job crafting research: A hierarchical structure of job crafting concepts and integrative review. *Journal of Organizational Behavior, 40*(2), 126–146.

Editorial Policy and Guidelines for Authors

JBE provides an opportunity to share and disseminate quality literature related to business and economics. It establishes a prime importance to academic orientation guided by scholarly rigor and practical relevance. The journal aims at publishing empirical research, theoretical papers along with literature reviews in accordance with academic perspective. In this light, JBE intends to become a valuable resource for scholars, students, practitioners, policy-makers, and managers.

Submission of research papers must be sent through AU website (www.au.edu.pk/jbe). Documents submitted should be in accordance with the following guidelines:

The document must be in Word format; other formats including pdf or any other type shall not be accepted. The format of the paper should be as follows:

- Title Page
- Title of the Study (center aligned, font size 16)
- Full names of Author(s), (center-aligned, font Size 11)
- Name of Institution, designation and footnotes etc., (Left-aligned, font Size 9)
- Abstract (not more than 200 words)
- Keywords
- Introduction
- Review of Literature
- Theoretical Model/Framework and Methodology
- Data Analysis (if applicable)
- Results, Implications and Conclusion
- References

Headings and subheadings should be differentiated by numbering in the following sequence: 1, 1.1, 1.1.1 etc. Subheadings should be in italics. The body of the paper must be typed in Times New Roman with 11 font size, line space 1.2, and should have margins of 1.33 inches on the top, 0.87 inches on the bottom, 0.75 inches on the left and right sides. The length of the paper should not be more than 30 pages, including figures, tables, exhibits, bibliography and annexure. Figures and table must have a title at the top and a caption mentioning data source and abbreviations. Footnotes should follow continuous numberings. Text including citation must be according to the APA format.

If the paper is accepted, it will be subject to proof reading and necessary formatting. Book reviews must contain the following details: name of the author, title and sub-title, place of publication and the name of the publisher, date of publication, number of pages and price etc. Book reviews must be concise and may not be more than 3 pages. Authors contributing to the journal will be sent a complimentary copy of the published issue.

Ethical Policy of JBE is to publish original research work, thus plagiarism of any sort is unacceptable. Use of other's work must be cited and acknowledged. Papers already published in other journals will not be accepted for JBE.

Air University, Islamabad

Air University, a federally chartered public sector university, was established in 2002. It is located at the footsteps of Margalla Hills in the capital city of Islamabad. It offers invaluable opportunities for academic and personal growth. Its inspiring and secure environment draws students from all parts of the country having diverse socio-economic and cultural backgrounds.

The mission of Air University is to achieve excellence in teaching, research and produce graduates with sound professional knowledge, integrity of character, a keen sense of social responsibility, and a passion for life-long learning. The university shall stand committed to creating an environment conducive for attracting the best students, faculty and supporting staff for contributing to development of a prosperous, peaceful and enlightened society. Air University provides under-graduate and graduate programs in a range of subjects including Management Sciences, Engineering, Computer Science and English Literature. It takes pride in its infrastructure including research laboratories and a well-maintained library that facilitates online access to international research journals.

The Faculty of Administrative Sciences at Air University stands for meeting the ever-growing academic challenges in the domains of business and economics. It is continuously engaged in the process of curriculum development accredited by subject specialists and professionals. All academic programs are intended to facilitate students with modern and most updated knowledge to hone their skills and behavior. The Faculty of Administrative Sciences also adopts an outward focus by collaborating with industry and other institutions of higher education and practitioners to strengthen its academic programs. As such, the effort is providing a strong foundation to the students for confident application of their invaluable knowledge in the professional world.

For further information please contact:

Phone: UAN +92-51-111 247 864 Ext: 751

Fax: +92-51-9260158

Email: jbe@mail.au.edu.pk

Web: www.au.edu.pk/jbe

Address: Air University, PAF Complex, Sector E -9, Islamabad.



Faculty of Administrative Sciences
Air University, Islamabad - Pakistan