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## JOURNAL OF

# Management

# and BUSINESS

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**Sukkur IBA Journal of Management and Business (SIJMB)** is the semi-annual research journal published by **Sukkur IBA University**, Sindh Pakistan. **SIJMB** is dedicated to serve as a key resource to provide practical information for the people associated with business, management and economics research at global scale.

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**Sukkur IBA Journal of Management and Business (SIJMB)**
**Publications Cell, Office of Research, Innovation & Commercialization - ORIC**
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i

*Mission Statement*

**Sukkur IBA Journal of Management and Business** is peer-refereed and multidisciplinary journal. The mission of **SIJMB** is to contribute and promote research in the field of business and management sciences. The journal encourages findings of innovative and solution oriented applied research.

*Aims & Objectives*

**Sukkur IBA Journal of Management and Business** aims to publish cutting edge research in the field of business, economics and management sciences. It accepts original research articles, case studies, reviews, and short comments on diverse issues, problems, unique concepts, hypotheses, and solution-oriented findings in interdisciplinary studies of economics and management sciences.

*Research Themes*
The research focused on but not limited to following core thematic areas;
- Entrepreneurship
- Finance
- General Management
- Globalization
- Economics
- Knowledge Management
- Leadership
- Marketing
- Operation Management
- Organization Behavior
- Organization Development
- Supply Chain Management
- Sustainability
- Human Resource Management
- Total Quality Management

## Patron's Message

**Sukkur IBA University** has been imparting education with its core values merit, quality, and excellence since foundation. **Sukkur IBA** has achieved numerous milestones in a very short span of time that hardly any other university has achieved in the history of Pakistan. Sukkur IBA Business School has been continuously ranked as best business school in Pakistan by Higher Education Commission (HEC). The distinct service of **Sukkur IBA** is to serve the rural areas of Sindh and also underprivileged areas of other provinces of Pakistan. **Sukkur IBA** is committed to serve targeted youth of Pakistan who are suffering from poverty and deprived of equal opportunity to seek quality education. **Sukkur IBA** is successfully undertaking its mission and objectives that lead Pakistan towards socio-economic prosperity.

In continuation of endeavors to touch new hallmarks in the field of business education and research, **Sukkur IBA** publishes an international referred journal. **Sukkur IBA** believes research is an integrated part of modern learning and development. Consequently, **Sukkur IBA Journal of Management and Business – SIJMB** is the modest effort to contribute and promote the research environment within the institution and Pakistan as whole. **SIJMB** is peer reviewed and multidisciplinary research journal to publish findings and results of the latest and innovative research in the fields, but not limited to business, economics and management. Following the tradition of **Sukkur IBA**, **SIJMB** is also aimed to achieve international repute and high impact research publication in the near future.

**Sukkur IBA** is mission driven university and committed to serve towards the socioeconomic development of Pakistan through education and research.

**Prof. Dr. Syed Mir Muhammad Shah**
Vice Chancellor, Sukkur IBA University

# Editorial

*Dear Readers,*

Once again, it's a pleasure to bring you the latest issue of **Sukkur IBA Journal of Management and Business - SIJMB**. Following our editorial policy, this issue contains double blind peer-reviewed articles which address the key business, management and economic issues pertaining to both national and international levels. The continued efforts of our editorial team and reviewers have enabled **SIJMB** to present you the high-quality research work based on the innovation, originality and contemporary issues in the core areas but, not limited to business, management and economics. **SIJMB** follows continuous improvement policy, and I thank all the stakeholders who have been the part of it. Moreover, **SIJMB** has continued its open access policy in order to reach larger audience and wider dissemination of published work.

While not forgetting that the **SIJMB** has an institutional association with **Sukkur IBA University**. In fact, the initiation of **SIJMB** is an outcome of strong research orientation followed by the Sukkur IBA and I am grateful for continuous institutional support in this regard. In addition, the **SIJMB** provides valuable platform for national and international researchers and publishes their research findings and disseminates those to the largest audience. The journal does not charge any fees and provides complimentary copy (in hard form) to each author. In addition, the supplement copies of the journal are also distributed to HEI and R&D institutions of the country. The journal has been archived by world's renowned scientific repositories. Journal has received recognition from several research agencies, universities and renowned professors. With pleasure, it is also to share with you all that the **SIJMB** has recognized by the **Higher Education Commission (HEC)**. In coming years, the journal aims to improve its current state by attracting more national and international researchers in the field of business, management and economics.

On behalf of the **SIJMB**, I welcome submissions for the upcoming issues of the journal and looking forward to receiving your valuable feedback.

**Dr. Khalid Ahmed**
*Editor-in-Chief*
**SIJMB**

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vi

# Effective Leadership Conceptualization in Higher Education Context

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## Abstract

The relevancy and significance of effective leadership has been emphasised in every setting, situation and context. The conceptualisation of effective leadership embedded in multiple perspectives due to the contextualised nature of leadership. The significance of higher education institutions and the necessity to manifest effective leadership in educational context entails empirical research and deep down understanding. Keeping in view the elusive nature of effective leadership and pivotal role of department head, this research endeavour aimed at exploring faculty members' perceptions concerning their conceptualisation of effective department leadership. Drawn from inductive research approach, semi-structured interviews were conducted from twelve faculty members of public university of Pakistan, located in Sindh province. The study findings highlighted thirteen important behaviours in relation to manifesting effective leadership by department heads. Notably, the majority of highlighted leadership behaviours appeared closely aligned with various dimensions of transformational leadership. However, there is need to conduct further research studies with larger sample size to endorse the effective leadership conceptualisation in Pakistani higher education context.

*Keywords:* *Effective leadership, Higher education, Department heads, Faculty members, Public university*

**JEL Code:** I12, J53, M12

## 1. Introduction

The core concept that underpins the leadership notion relates to influencing and facilitating individuals and organisations to attain their desired goal. Effective leaders have been conceptualised as those who can work well with their team members in shaping collective efforts to achieve institutional goals (Nahavandi, 2015, Bolden 2016). In order to refine this conceptualisation, leadership researchers strove to identify particular aspects of leadership behaviour that could elucidate effective leadership. The relevancy of effective leadership has been emphasised in every situation and context (Bass, 2008). This large emphasis on leadership can be attributed to the notion that effective leaders can initiate a positive interaction with their followers, can develop a

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conducive working environment and can deal with the multiple challenges posited by external forces (Nahavandi, 2015) to produce quantitatively and qualitatively high results (Bass, 2008).

Notably, transformational leadership has been conceptualised in relation to effective leadership within Western developed countries (McCaffery, 2010; Smothers et al., 2012; Yukl, 2012). However, it has been pointed out that the "leadership effectiveness is profoundly influenced by the context" within which the leadership phenomenon takes place (Bryman and Lilley, 2009, p.337). The emphasis on effective leadership in academic settings is echoed at national as well as global level, due to the central role played by the higher education in the economic development of a country (Kim, 2011). The emergence of multifarious challenges faced by the academic sector, the significance of higher education institutions and the demand for effective leadership have changed the overall scenario in which universities need to operate, managed and led (Northouse, 2013).

Within the hierarchical structure of public universities in Pakistan, formal authority flows from top to bottom (i.e., vice-chancellor to pro-vice-chancellor, pro-vice-chancellor to deans of faculties, and then deans of faculties to heads of departments/institutes/centres). Each department/institute/centre is headed by a chairperson/director (the department head) who is responsible for the entire academic, research and administrative matters of the subordinate faculty and respective departments/institutes/centres. The role of a department head has been referred to as being very important and, irrespective of the country, this leadership position has been considered of significant value (Smothers et al., 2012). Generally, the department leadership position has been characterised as a middle position within the academic setting, although Middlehurst (1995) stresses that due to the distinctive nature of higher education settings and the pivotal role of department leadership, this position cannot be directly compared with the middle management position in non-academic or private sector settings.

In order to characterise effective department leadership, an awareness of the faculty members' perceptions of desired leadership behaviour would be of significant value for the department heads (Aktas et al. 2016). There is nearly universal consensus that the leadership is a function of leaders and followers, embedded in a rich web of negotiated meanings and contextual variables" (Bligh et al., 2004, p.562). This refers to the way that followers conceptualise effective department leadership, which in turn is likely to identify the characteristics that could exert a positive impact on individuals as well as organisational outcomes (Smothers et al., 2012). Currently, Higher Education Commission (HEC) of Pakistan urges faculty members to play a more active role by adopting innovative and performance-oriented approaches to teaching, research, consultancy, publication of books and journal articles, development of entrepreneurial activities and community involvement. Such multiple expectations from faculty members entail positive leader-faculty interaction, established through socio-cultural and contextual-driven leadership practices, to achieve institutional goals drawn from individual and group performances.

It is of note that despite a high value being attached to the role of department head pertinent to developing direct and frequent interaction with the faculty members and

monitoring the core functions of teaching and research, little attention has been paid to investigate how this leadership position is practised within academic settings (Mushtaq and Akhtar, 2014). In order to address this research gap, by employing an inductive research strategy, this research study intends to offer a contextualized understanding of effective leadership by obtaining a subjective interpretation of the faculty members' opinions regarding their conceptualisation of effective leadership within their own work settings. In this regard, this research is focused on addressing research question concerning "Which aspects of the leader behaviours or approaches are allied with effective leadership at the department level in the context of a Pakistani public university, from the faculty members' perspective?".

The contribution of this research study to the extant literature concerning departmental leadership is threefold. First, this research study is the first attempt to employ inductive approach to explore faculty members' subjective perceptions to gain deeper and through understanding pertinent to departmental leadership. Second, this study tried to unfold the contextualised nature of the departmental leadership in higher education context. Third, this research used well tested leadership frameworks to build upon effective leadership conceptualisation at departmental level.

## 2. Literature Review

In ascertaining effective leadership, the emergence of numerous types of leadership behaviour within the relevant studies has made it challenging to compare and integrate the findings concerning effective leadership conceptualisation (Bass, 2008). However, this challenge endorses that there is a need to take into account multiple perspectives and approaches with respect to effective leadership conceptualisation. Following this perspective, Yukl (2012) conducted an extensive literature review, spread over more than half of a century, to identify various aspects of leadership behaviour associated with effective leadership conceptualisation. Drawn from his analysis, Yukl pointed out certain aspects of leadership behaviour and classifies them into four main dimensions.

According to Yukl's (2012) conceptualisation, task-oriented behaviour is characterised in terms of accomplishing work in an efficient and reliable manner by employing people, equipment and other resources, and it constitutes sub-dimensions of clarifying, planning, monitoring operations and problem-solving. According to Yukl's (2012) classification, relation-oriented behaviour places emphasis on developing a positive interaction between leaders and subordinates, by supporting, developing, recognising and empowering subordinates. Yukl (2012) describes change-oriented behaviour in relation to enhancing innovation, promoting collective learning and adapting external changes by exercising sub-dimensions of advocating change, envisioning change, encouraging innovation and facilitating collective learning. Moreover, concerning effective leadership, Yukl (2012) identifies the external behaviour of a leader in terms of fostering and sustaining external links though networking, external monitoring and representing.

Moreover, Yukl stresses that the timing of when to exercise particular leadership behaviour is also of significant value, because when problems are timely addressed, then this is more effective than waiting until the issues turn very serious. This suggests that although the demonstration of certain sets of behaviour is important, sometimes it

is essential for a leader to find an appropriate balance among them that seems contradictory to each other, such as directing versus empowering (Kaiser and Overfield, 2010).This reflects that a leader's ability to practise a variety of leadership behaviours and to match them with underlying situations (in other words, 'behavioural flexibility') is also associated with effective leadership (Yukl and Mahsud, 2010).

Yukl (2012) highlights that the fifteen aspects of leadership behaviour concerning effective leadership, identified through an extensive literature review, appear closely aligned with the transformational and transactional leadership framework. Here, individualised consideration entails supporting and developing, inspirational motivation involves envisioning change, intellectual stimulation involves encouraging innovation, and idealised influence is mainly referred to as a measure of the perceived integrity of the leader, demonstrated by maintaining consistency between the leader's actions and adopted values (Yukl, 2012 ).On the other hand, transactional leadership involves one task-oriented behaviour (such as monitoring), one relation-oriented behaviour (such as recognising) and communication of reward (Yukl, 2012).

McCaffery (2010) highlights that despite the fact that substantive research to date has focused upon exploring the attributes of effective leadership within higher education settings, "the quest to determine just what makes a leader effective…remains as elusive today as it has ever been" (McCaffery, 2010, p.82). To address this concern, McCaffery elaborates upon four models of new leadership: the visionary leader, the learning organisation leader, the liberating leader and the discretionary leader, all pertinent to effective leadership conceptualisation. Notably, these four models of new leadership draw heavily from transformational leadership in relation to elaborating contemporary thinking concerning effective leadership (McCaffery, 2010,).

On the whole, McCaffery's conceptualisation of effective leadership involves vision, empowerment, continuous learning, development, unlocking potential, encouraging creative activities and endorsing leaders' discretionary roles pertinent to outlining particular types of behaviour to reflect effective leadership. Notably, all these aspects have significant relevance within the higher education context and could provide useful insights concerning effective leadership in an academic setting. It is of note that McCaffery's (2010) conceptualisation involves effective leadership across all hierarchical levels within higher education settings, whereas in some studies, effective leadership has also been conceptualised specifically at department level within academic settings.

With respect to exploring effective leadership at department level, Bryman (2007) reviewed extensive literature drawn from studies conducted within the UK, USA and Australian academic contexts. Based on his analysis, he identified various aspects of leadership behaviour related to effective leadership conceptualisation at department level. In the prior literature, these aspects of leadership behaviour were characterised from different perspectives. In this regard, leadership behaviour entailing due consideration in relation to offering due respect so as to develop mutual trust has been considered as an important aspect of effective leadership within higher education settings (Abuorabl, 2012). In a similar vein, the leader has been characterised as a visionary, as one who offers a roadmap to subordinates to show the direction that the department is expected to go and communicate a shared vision of the department

(Bryman, 2007). Concerning this aspect, a number of previous studies have corroborated the significance of promoting a shared vision by the leader within higher education settings (Asaari, 2012).

Although, drawn from the literature review, Bryman (2007) proposes a list of thirteen aspects of leadership behaviour in relation to conceptualisation of effective department leadership. However, he also raises the significance of particular context, while exercising these proposed aspects of behaviour by the leader. In this regard, Bryman (2007) argues that the notion of context and situational diversity could exert notable influence on implications of effective leadership, so leadership behaviour that might appear effective in one context may not work effectively in another setting. Pertinent to effective leadership conceptualisation in higher education settings, the professional/intellectual status of academic staff has also emerged as an important consideration, whilst identifying the manner by which faculty members may need to be led (Kok and McDonald, 2017).

Bryman and Lilley (2009) attempted to explore academics' views concerning the basic notion of effective leadership at department level. Interestingly, they reported that the majority of the behavioural patterns which emerged from the interview findings concerning effective leadership were consistent with the major themes identified by Bryman (2007). Moreover, Bryman and Lilley (2009) characterised the department head's position as 'stuck in the middle' in terms of representing the university to the department on one side and department to the university on the other. Due to this middle position, Gmelch (2004) refers to this leadership position in terms of having broader institutional requirements and expectations of the institutional leaders on the one hand, and of the expectations and needs of their departmental staff on the other hand.

The above discussion reveals that the effective leadership conceptualisation draws impetus from different perspectives. In broader terms, Yukl (2012) terms his effective leadership conceptualisation as being closely aligned with transformational and transactional leadership. In a similar vein, McCaffery (2010) describes effective leadership within the framework of four models of new leadership, which are heavily drawn on transformational leadership. On the whole, it is of note that whatever aspects of leadership behaviour concerning effective leadership conceptualisation have been debated within relevant literature, their implications are predominantly elaborated upon and linked with contextualised understanding. This strong emphasis on contextualised understanding raises a need to understand effective leadership within that particular context (i.e., where it takes place).

## 3. Methodology

In terms of acknowledging the distinctiveness of human nature, as well as measuring social phenomena using qualitative research, the interpretive approach appears to be necessary to understand the subjective meanings assigned to social actions by individuals (Bryman, 2012). The focus of this research study is based on seeking the perceptions and opinions of the faculty members of a particular public university in Pakistan. The selected public university in Pakistan, which is the focus of this research is located in Jamshoro city and is one of the oldest and largest in this country. It comprises one main campus and seven other campuses in different cities. Since the

qualitative research is mainly aimed at explaining a particular phenomenon or specific concept, therefore the researcher commonly selects a small sample which could provide detailed insight regarding the research issue under study. Consequently, in qualitative research, instead of focusing on generalisation, the detailed understanding of a few individuals is preferred (Creswell and Plano Clark, 2011).

For qualitative data collection, permanent faculty members of one large public sector university with minimum two year working experience were contacted for their voluntary participation in the research. The selection of permanent faculty members is based on the rationale that these faculty members had much involvement with ongoing activities at department level and have certain experiences/expectations from their departmental leadership. Initially, twenty-five faculty members were contacted. The total seventeen faculty members expressed their willingness to participate. However, keeping in view, the objectives of the study and nature of the purposive sampling twelve faculty members were selected for semi-structured interview. Among these twelve faculty members, eight were selected from the main campus and four were selected from the other campuses. The rationale behind the selection of eight members from the main campus and four from the other campuses was based upon the notion that faculty members from both the main campus and the other campuses would collectively provide a more comprehensive and deeper account of the issue under study. The selection of twelve faculty members for semi-structured interviews offered the opportunity to obtain an in-depth and detailed insight pertinent to the issue under study in the best possible way (Bryman, 2012).

The data were analysed through "thematic analysis" by using NVivo 10 (QSR International PT, 2014). The use of 'thematic analysis' appeared suitable in relation to exploring the similarities and inconsistencies across the participants' responses, which could enable the researcher to organise, summarise and report the main contents and the underlying pattern of the data under pre-defined as well as new emerging themes, reflected by the empirical data (Bryman, 2012). Drawn from the general guidelines proposed by Creswell (2012) concerning qualitative data analysis, all semi-structured interviews were transcribed, coded, categorised, thematized, analysed and interpreted in terms of achieving the research objectives.

## 4. Data Analysis

This section presents the qualitative data analysis and findings concerning research question: "*Which aspects of the leader behaviours or approaches are allied with effective leadership at the departmental level in the context of a Pakistani public university, from the faculty members' perspective?".* In terms of initiating the data analysis, inductively and deductively constructed codes were generated from the qualitative data, then later on these codes were grouped and categorised into thirteen themes as encapsulated in Table 1 and elaborated below:

Table 1: Desired Behaviours to Effective Leadership at Department Level

| |
|---|
| Offering fair treatment |
| Providing guidance and supervision |
| Employing problem solving approach |
| Providing support and mentoring |
| Permitting participation in decision making |
| Maintaining mutual trust and due respect |
| Promoting teamwork and collegiality |
| Communicating effectively on department issues |
| Acting as a role model |
| Adopting a proactive approach |
| Advancing personal and promotional development |
| Adjusting workload to enhance performance |
| Managing limitations constructively |

**Source:** This study

### 4.1.  Offering Fair Treatment

A common view amongst the participants concerned the significance of the leaders' behaviour aimed at offering fair treatment to all faculty members. Participants elaborated upon the fair treatment shown by the leaders in relation to providing equal opportunities, fair allocation of workload and fair implementation of rules and policies. On the whole, conversations with the interview participants noted that, for faculty members, receiving fair treatment by the leader is of utmost value, whereas any leader's behaviour that caused feelings of unfair treatment among faculty members could have a negative impact on them. Due to such a strong emphasis being placed on fair treatment, this aspect of leader behaviour emerged as a core aspect of faculty members' conceptualisation of effective department leadership.

### 4.2.  Providing Guidance and Supervision

The guidance and supervision provided by a leader emerged as an integral aspect of effective leadership conceptualisation.  The participants strongly supported this aspect of leader behaviour in relation to the multidimensional nature of the faculty job. The participants maintained that because they have to work on multiple tasks and are required to fulfil different deadlines, they expect that their leaders would make efforts to ensure that the multiple activities are well planned and well-coordinated, so that faculty members could perform them in the best possible way. Overall, the conversations with the participants noted that conceptualisation of effective leadership draws impetus from a leader's willingness to sort out underlying problems in the best possible manner, minimising work disruptions and nurturing positive relationships between faculty members and the leader, as well as among the faculty members themselves.

### 4.3.  Employing a Problem-solving Approach

Employing an effective problem-solving approach by a leader emerged as the most cited behaviour by the participants with reference to effective leadership conceptualisation.

The participants characterised the image of an effective leader as being a problem solver, considering that the occurrence of problems is normal in any working environment. However, a conducive work environment primarily determined by the manner by which a leader would resolve these problems. The participants raised the necessity of problem-sharing with the leader to make him/her well aware of existing problems. The participants criticised leadership behaviour incorporating negative problem-solving approach by ignoring the signs of emerging problems, making hasty responses before knowing the actual cause of a problem, and taking too much time to take decisions so that the matter becomes more complicated.

### 4.4. Providing Support and Mentoring
The significance of support and mentoring provided by the leader was highlighted by eleven majority participants. Concerning this aspect, the participants characterised effective leadership in relation to the actions taken by a leader to help faculty members perform well on difficult tasks by expressing confidence in their abilities and achievements. Primarily, this aspect of leadership behaviour was characterised in terms of offering psychological safety and positive backing to faculty members, to enable them to learn from their mistakes and failures, instead of becoming afraid in any undesirable situation. In broader terms, the participants strongly advocated leadership behaviour which was aimed at promoting a 'can do' attitude amongst faculty members, in relation to enhancing their self-confidence and providing constructive feedback on their performance. On the whole, it was noted that, for faculty members, gaining support from their leader and the leader's role as a mentor, constituted important aspects in the conceptualisation of an effective leader.

### 4.5. Permitting Participation in Decision-making
The participants identified the significance of leadership behaviour aimed at promoting faculty members' participation in decision-making, in terms of manifesting effective leadership. In this regard, a common view amongst the participants was that because routine decisions are more often taken at department level pertinent to daily work activities, faculty members' participation in decision-making could make them more familiar with existing issues. Overall, the conversations with the interview participants noted that, for faculty members, effective department leadership conceptualisation was embedded in the opportunities available for them to participate in decision-making. Primarily, amongst the participants, the highly educated status of the faculty members and the nature of departmental decision-making in terms of incorporating daily work activities, were the key factors pertinent to supporting their involvement in decision-making.

### 4.6. Maintaining Mutual Trust and Due Respect
The participants raised the importance of leadership behaviour aimed at promoting mutual trust and offering due respect by promoting collaboration and positive interaction between the leader and faculty members. Essentially, the conversations with the interview participants identified that the reciprocal nature of mutual trust and due respect plays an important role in manifesting effective leadership, by enhancing faculty

members' confidence that their efforts will achieve desired outcomes, which would be beneficial for all.

### 4.7.  Promoting Teamwork and Collegiality

The participants asserted that the leader's behaviour towards promoting teamwork and collegiality could positively contribute to a conducive working environment. The participants referred to teamwork in terms of exerting collective efforts to achieve common tasks, whereas collegiality was elaborated upon in terms of providing mutual support to each other within the academic setting. In terms of emphasising the significance of this aspect of leadership behaviour, the participants expressed that because they are expected to be engaged in individual as well as joint tasks, the working environment is therefore largely shaped by mutual cooperation and collective learning. Overall, the participants were of the view that a high degree of teamwork spirit and collegiality could be considered as a reflection of practising effective leadership by the department leader.

### 4.8.  Communicating Effectively on Departmental Issues

The participants emphasised the significance of a leader's behaviour aimed at ensuring effective communication within and outside the department, in terms of raising and addressing departmental issues. A common view amongst the participants was that departmental leadership entails direct and frequent interaction with faculty members as well as with the higher authorities. Therefore, the leader could utilise this leadership position as a bridge between the two sides and could exchange important information to both sides of the bridge. The participants identified effective internal communication by the department leader in terms of clearly defining work responsibilities, setting priorities and deadlines, and promoting familiarity with formal rules, policies and performance measurement standards. On the whole, faculty members characterised an effective leader as one who made efforts to facilitate the vertical communication flow between higher-ups and faculty members, as well as the horizontal communication flow among all departmental members themselves.

### 4.9.  Acting as a Role Model

 Participants pointed out that a leader demonstrating desirable behaviour could work effectively, instead of relying solely upon written policies and procedures. Primarily, participants were of the view that the leader should set an example to others by demonstrating desired behaviour in relation to policy compliance, civility, trust, self-efficacy and self-confidence. However, in terms of debating the role model aspect of a leader's behaviour, the participants acknowledged the intellectual status and professional exposure of the faculty members and suggested that the leader should adopt a distinctive approach while demonstrating desired behaviour. The participants' emphasised that the department leader, being academic like other faculty members, should not focus on the traditional subordinate-leader relationship in an academic setting. Instead, the leader should establish credibility among faculty members as an academic and shouldtry to gain the desired behaviour from them by modelling their

own behaviour first. The participants believe that the moral values maintained by a leader could act as a basic source for the leader's influence upon faculty members.

## 4.10. Adopting a Proactive Approach

Participants pointed out the significance of leadership behaviour aimed at adopting a proactive approach, in relation to assessing an emerging situation and taking actions to contribute positively in every situation. Primarily, participants characterised an effective leader as a proactive one, who takes the initiative to find solutions to problems rather than just focusing on reporting the problems.  The participants characterised a proactive leader as an effective leader in terms of timely decision-making, ensuring a smooth working environment and avoiding unnecessary delays. On the whole, the participants were of the view that the conceptualisation of effective leadership draws impetus from using a proactive approach, because for certain issues the immediate attention of a leader is needed, especially where a delayed response to these problems could not yield better results.

## 4.11. Advancing Personal and Professional Development

A common view amongst participants concerned the significance of a leader's behaviour which aimed at enhancing personal and professional development of faculty members by offering them various opportunities, either within or beyond the university. The participants emphasised this aspect of leadership behaviour in relation to the distinctive nature of higher education institutions pertinent to the production and dissemination of knowledge, which entails maximum opportunities for the personal and professional development of faculty members. Related to this aspect of leadership behaviour, the participants raised the issue of the lack of sufficient funding allocated for their higher education and research work. The participants also appreciated their leader's behaviour aimed at encouraging innovative approaches to be used by the faculty members. Overall, the conversations with the participants reflected the leaders' efforts in relation to promoting various activities that could enhance the personal and professional development of faculty members, which constitute a fundamental aspect of effective leadership conceptualisation.

## 4.12. Adjusting Workload to Enhance Performance

The participant pointed out the significance of leadership behaviour which helps faculty members by providing them with the required resources and fine-tunes their workload. The participants attributed the relevancy of this aspect of leadership behaviour to their multifaceted nature of their job, in relation to academic teaching, research, administration, student advising etc., which demands specific types of resources, expertise and aptitudes. Participants highlighted the issue of less research productivity due to their heavy teaching workload. Overall, the conversations with the participants indicated that the conceptualisation of effective leadership is largely also embedded in the leaders' efforts aimed at facilitating faculty members by providing them with the necessary resources, safeguarding them from unnecessarily heavy workloads and enhancing their productivity.

**4.13. Managing Limitations Constructively**

Primarily, the participants proposed that the leader should adopt a more effective approach in terms of dealing with various issues, because although there were some issues which the leader could deal with himself/ herself, for some other issues the involvement of higher authorities was needed. The participants considered that the leader should utilise his/her middle position more effectively, by paying individual attention to each faculty member and appropriately communicating their matters to the higher authorities. Mainly, the participants were of the view that the leader, by enhancing his/her referent power, could reasonably offset the limitations of their official authority. The participants conceptualised the department leadership position in terms of representing their departments in transactions with insiders and outsiders, due to which their position not only entails lobbying for the required resources, but also is expected to promote and defend the reputation of the department, by negotiating agreements and coordinating relevant activities.

## 5. Discussion and Conclusion

The overall findings broadly appear consistent with the conceptualisations of effective leadership proposed by Bryman (2007), McCaffery (2011). The various aspects of behaviour relating to effective leadership identified in this research study are also documented in the prior empirical research (for example, Hardre et al., 2011; Kim, 2011; Toker, 2011; Abuorabl, 2012; Amin, 2012, Amzat and Idrees,2012; Asaari, 2012; Kalargyrou et al., 2012, Smothers et al., 2012, Burhanuddin, 2013, Giziri, 2014). However, the research study findings appear unique in that they need to be understood from the individual's perspective based on their subjective interpretation. Because Yukl (2012) stressed that the behaviour constructs are basically conceptual tools and there is no objective reality for them. Consistent with Yukl's argument, while shedding light on different aspects of effective leadership conceptualisation, faculty members elaborated upon their perspectives in a distinctive manner, drawn from their personal experiences and individual preferences.

With regard to endorsing the significance of the contextualised understanding of leadership practices, this study acknowledges that if leadership is isolated from its context, then ambiguities might arise pertinent to defining effective leadership in any setting. Therefore, it is rational to believe that those desirable leadership practices highlighted by the faculty members concerning effective leadership are influenced by the underlying context of public sector university of Pakistan. Notably, with regard to this study's findings, there is the need to acknowledge that those leaders who demonstrate the aforementioned thirteen aspects of leadership behaviour, as emphasised by the faculty members (or a large number of them), are more likely to be considered effective leaders by their faculty members than those leaders who do not demonstrate them. However, it is important to bear in mind that these thirteen aspects of leadership behaviour emerged from the subjective interpretations of the study participants. They do not necessarily embrace any prescribed list of fixed behaviour required for practicing effective leadership.

This study corroborates Bryman and Lilley's (2009) argument that "leadership effectiveness is profoundly influenced by the context, within which leadership

phenomenon takes place" (p.337). In addition, this study's findings are consistent with those of Bush and Middlewood (2005), who claim that organisational culture is an important component of a specific context, where leader and faculty members interact with each other, and consequently it could offer an immediate framework for their actions. With reference to this research, in broader terms, the organisational culture of the public university under study might be reflected by its semi-autonomous status, organisational hierarchy, working practices and conventions, rules, regulations, policies, procedures and operating systems, as well as its demographic features, which might vary from those of other institutions.

Interestingly, this study demonstrates that the various aspects of leadership behaviour, identified with respect to effective leadership conceptualisation, appear closely aligned with the different aspects of the five dimensions of the transformational leadership style and some aspects of the transactional leadership style ('contingent reward' dimension only). In this regard, leadership behaviours comprising of 'fair treatment, guidance and supervision', 'effective problem-solving', 'support and monitoring', 'participation in decision-making', 'mutual trust and due respect', 'collegiality and teamwork', 'being a role model' and 'proactive approach', in broader terms, embrace the various aspects of the transformational leadership style. Whereas, leadership behaviours aimed at 'clear communication', 'adjusting workload' and 'providing required resources' broadly align with the 'contingent reward' dimension of the transactional leadership style.

In broader terms, this study's findings are in accord with those of Braun et al. (2013), who assert that the significance of the transformational leadership style in manifesting effective leadership within an academic setting may be attributed to the assumption that its five dimensions reflect individual as well as team-focused behaviours that positively contribute at both individual and group level. Consistent with this research study, both Yukl (2012) and McCaffery (2010) considered their effective leadership conceptualisation as being closely aligned with the different aspects of the transformational and transactional leadership styles. Overall, this study strongly supports the practice of the transformational leadership by the department heads in the public sector university under study. Notably, although this study provides useful insight pertinent to conceptualisation of effective leadership, however, some caution is needed to generalise findings. One limitation of this research is that it is confined to just one public university of Pakistan, located in the province of Sindh. Therefore, in order to validate these findings, further research is needed from both public and private universities across all of the country. Future research studies may also include departmental heads' views along with faculty members to offer more inclusive understanding of the phenomenon. Further, future studies might also employ mixed method research approach by utilising quantitative and qualitative techniques to study the multidimensional nature of leadership phenomenon.

## AUTHOR CONTRIBUTION

Shah, S.S: Conceptualization, Methodology, Writing-Original Draft, Supervision
Shah, A.A: Methodology, Formal Analysis, Writing- Review and Editing
Soomro, A.B: Formal Analysis, Writing-Review and Editing

**DATA AVAILABILTY STATEMENT**

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

**CONFLICT OF INTEREST**

No conflict of interest

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## REFERENCES

Abuorabl.T. (2012).The impact of transformational and transactional leadership characteristics on motivation, job satisfaction and trust within Jordanian universities, (unpublished doctoral thesis), Liverpool John Moores University, United Kingdom.

Aktas, M., Gelfand, M. J., & Hanges, P. J. (2016). Cultural tightness–looseness and perceptions of effective leadership. Journal of Cross-Cultural Psychology, 47(2), 294-309.

Amin, M., Shah, S. & Tatlah, A. (2013).The impact of principal/directors' leadership styles on job satisfaction: perceptions of the faculty members' in a public university in Punjab, Pakistan, Journal of Research and Reflections in Education, 7 (2), pp.97-112.

Amzat, I.H. and Idris, D.A.R. (2012). Structural equation models of management and decision-making styles with job satisfaction of academic staff in Malaysian Research University. International Journal of Educational Management, 26 (7), pp.616-645.

Asaari, M.H. (2012).Academic leadership and work-related attitude(unpublished doctoral thesis), University of Hull, United Kingdom.

Bass, B.M. (2008). The Bass's handbook of leadership. theory, research and managerial applications.4th ed. London: The Free Press.

Bligh, M.C., Kohles, J.C. and Meindl, J.R. (2004). Charting the language of leadership: a methodological investigation of President Bush and the crisis of 9/11. Journal of Applied Psychology, 89 (3), pp.562-574.

Bolden, R. (2016). Leadership, management and organisational development. In Gower handbook of leadership and management development (pp. 143-158). Routledge.

Braun, S., Peus, C., Weisweiler, S. & Frey, D.(2013).Transformational leadership, job satisfaction, and team performance: a multilevel mediation model of trust, The Leadership Quarterly, 24 (1), pp.270-283.

Bryman, A. (2007). Effective leadership in higher education: a literature review,Studies in Higher Education, 32 (6), pp.693-710.

Bryman, A. & Lilley, S. (2009). Leadership researchers on leadership in higher education, Leadership, 5 (3), pp.331-346.

Bryman, A. (2012). Social research methods. Oxford: Oxford University Press.

Burhanuddin, 2013. Participative management and its relationship with employee performance behaviour: a study in the university sector in Malang Indonesia. PhD. University of Adelaide. Australia.

Bush, T. and Middlewood, D. (2005). Leading and Managing People in Education. London: Sage.

Creswell, J.W. (2012). Educational research: planning, conducting, and evaluating quantitative and qualitative research. London: Pearson.

Creswell, J.W. and Plano Clark, V.P. (2011). Designing and conducting mixed methods research. Los Angeles: Sage.

Gizir, S. (2014). A qualitative case study on the organizational identity of faculty members. Educational Sciences: Theory and Practice, 14 (4), pp.1309-1324.

Gmelch, W.H. (2004). The department chair's balancing acts. New Directions for Higher Education, (126), pp.69-84.

Hardré, P.L., Beesley, A.D., Miller, R.L. and Pace, T.M. (2011). Faculty motivation to do research: across disciplines in research-extensive universities. Journal of the Professoriate, 5 (1), pp.35-69.

Kaiser, R.B. and Overfield, D.V. (2010). Assessing flexible leadership as a mastery of opposites. Consulting Psychology Journal: Practice and Research, 62 (2), pp.105-118.

Kalargyrou, V., Pescosolido, A.T. and Kalargiros, E.A. (2012). Leadership skills in management education. Academy of Educational Leadership Journal, 16 (4), pp.39-63.

Kim, H.G. (2011). Job satisfaction among Korean academics: a critical investigation. PhD. University of Nottingham. United Kingdom.

.Kok, S. K., & McDonald, C. (2017). Underpinning excellence in higher education–an investigation into the leadership, governance and management behaviours of high-performing academic departments. Studies in Higher Education, 42(2), 210-231.

McCaffery, P. (2010). The higher education manager's handbook: effective leadership and management in universities and colleges.2nd ed. London. Routledge.

Middlehurst, R. (1995). Changing leadership in universities. In: N.T. Schulter, ed.The changing university. London: Open University Press.pp.75-92.

Mushtaq, S. and Akhtar, M.A. (2014). Study to investigate the effect of demographic variables on leadership styles used by department heads in universities. Journal of Quality and Technology Management, 10 (1), pp. 17-33.

Nahavandi, A. (2015). The art and science of leadership. Boston: Pearson.

Northouse, P.G. (2013). Leadership: theory and practice. Thousand Oaks, CA: Sage.

Smothers, J., Absher, K. and White, D. (2012). In the eye of the beholder: a configurational analysis of followers' conceptualizations of the ideal academic department leader at private universities. Leadership, 8 (4), pp.397-419.

Toker, B. (2011). Job satisfaction of academic staff: an empirical study on Turkey. Quality Assurance in Education, 19 (2), pp.156-169.

Yukl, G. (2012). Effective leadership behavior: what we know and what questions need more attention. The Academy of Management Perspectives, 26 (4), pp.66-85.

Yukl, G. and Mahsud, R., (2010). Why flexible and adaptive leadership is essential. Consulting Psychology Journal: Practice and Research, 62 (2), pp.81-93.

# A conceptual review of capital structure under risk-based capital regime, risk profile of insurer's and performance

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## Abstract

This paper evaluates capital structure under risk-based capital regime from the perspective of insurance firms and its performance. It also evaluates the moderating effect of insurer's risk profile on capital-performance relationship. The authors aim to reveal ambiguities, gaps and omissions in the literature and to sketch avenues for future research. A conceptual framework for capital structure under risk-based capital era and its application is suggested focusing on equity, technical provision and required risk propensity for maximizing profit and wealth for all stakeholders. The research reviews that capital structure of insurers differs from non-insurance firms as such risk-based capital regulation must not only focus on the various types of risk but also recognized these differences. It is shown that insurers' capital structure contains equity and technical provisions which comprises accruals and creditors, payable claims and insurance funds as an alternative of equity and financial debt as it is with conventional non-insurance firms. This study thus stressed that for capital structure to best explain performance of insurers, it must be measured by equity ratio and technical provision ratio in place of debt ratio and corporate risk profile (quantitative and qualitative) must enter its sequence of performance relational analysis and effectiveness equations. We stressed further that only with the proposed conceptual framework would a holistic understanding of insurer's capital structure be achieved while the observed contradictory and inconclusive empirical findings on capital structure and firm performance could be resolved.

*Keywords: Risk-based capital, capital structure, financing decision, insurer risk profile, insurer's performance*

**JEL Code**: M54, J19

## 1. Introduction

The mandatory requirement for firms to hold higher capital is essentially an exercise of regulatory oversight function and power to ensure that firms are adequately capitalized to remain solvent and liquid overtime and in line with the volume of risk assumed. According to Cheng & Weiss (2013) under RBC, capital structure is tinkered by finding the 'best possible' and less costly source of fund to shore up capital base and

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make the firm able to fulfill any liability or obligations that may arise or fall due in the course of business operation. Therefore, discussions under RBC should focus on capital structure because it is the primary target of the regulation. Capital structure is defined as funding options available for firm to finance its operations. Moreover, it is measured as the basis for company's survival and has been deliberately and extensively studied in the literature of corporate finance (Dhaene *et al.*, 2015). Such measures as leverage ratio, short-, long-, and total debt to total asset are often used to represent capital structure whereas theories describe capital structure as basically consisting of equity and debt. Under RBC, firms could raise funds either from equity or debt or both sources. However, insurer's capital structure differs; instead, it is made of technical provisions and equity (Florio & Leoni, 2017). This description extends capital structure equation of insurance firms beyond equity and debt to creditors and accruals and unpaid claims of policyholders. This will require a different proxy for capital structure in insurance studies.

Briefly, ownership is considered as equity contribution whereas technical provision is the mixture of debt (insurance funds) and liabilities which have non-interest bearings (accruals and creditors and unpaid claims of policyholders) all of which constitute insurance obligations. This conceptualization of insurance capital structure has important implications such as the opportunity cost of the non-interest-bearing liabilities like loss of business, premium and profit and loss of credit-worthiness, more fund and high cost of capital. These constitute the current debatable issues among scholars in finance, risk management and insurance, as insurance firms are virtually all the time left out in discussions on capital structure thus resulting not only on scarce, but incomplete literature (Dhaene *et al.,* 2015). Theories of capital structure relevance predict positive effect of a firm's capital structure performance. However, the use of the above conventional proxies may not adequately explain insurer's capital structure as the non-interest-bearing liabilities which opportunity costs plays significant role in insurer's cost of capital are excluded. Also, the above proxies reflect debt structure instead of capital structure, in which case, capital structure is inappropriately represented by one dimension (e.g. debt-equity ratio) or one attribute (e.g. debt) which has been criticized as being inappropriate or incomplete measure that can lead to vague information and conclusion about firm's capital-performance relationship (Shubita & Alsawalhah, 2012).

From inception in insurance sector, the focus of RBC has been more on the types of risks covered and correct formulae for its determination rather than on studying the immediate effect on capital structure and how that has translated to better performance (Yusof, Lau, & Osman, 2015). This oversight has led to miss-conceptualization with subtle potential consequences one of which is a decision dilemma to practitioners and policy makers as some authors have blamed the government and regulators for the inadequacies of the policy (Muhlnickel, Weiss, & Schmidt, 2016; Mutenga & Staikouras, 2007; and, Aghoghobvia, 2005). Also, RBC regime aimed to change firm behaviors including their attitude toward risk taking (Hartman, Braithwaite, Butsic *et al.*, 1992). This implies that studying the direct effect of capital structure on

performance may not provide sufficient information on such relationship as past outcome may still not change from being mixed, inconclusive and inconsistent (Gaganis & Pasiouras, 2013).

The above discussion shows that capital-performance relation goes beyond one attribute or dimension measure and from direct to interaction, effect and ultimately from a narrow to a holistic evaluation. Therefore, a right framework for analysis is imperative. Based on the suggestion of an inclusive investigation involving insurance capital, its regulation and performance (Dhaene *et al.*, 2015), these researchers argued that the ambiguities in past research outcomes may not be unrelated to lack of right framework to conduct such inclusive investigation. Therefore, the conceptual research questions are: what effect would capital structure measured by equity ratio and technical provision ratio have on insurer's performance under RBC? And, what is the moderation effect of insurer's risk profile on issuer's capital- performance relationship under RBC? To analyze these questions from a conceptual perspective, this paper firstly examines theoretical background of capital structure and firm performance and then provides some evidence of capital structure interaction with risk profile under RBC regime. Finally, a conceptual framework is suggested which may provide a holistic and better understanding of capital structure and its interaction with CRP in relation to firm performance from insurance perspective.

## 2. The Theoretical Background

RBC regime focuses on capital regulation. It is a domain in Finance, Insurance and Risk Management that has suffered dearth of research interest in insurance studies (Dhaene *et al.,* 2015). In particular, some theories and few studies have implicitly highlighted the link between RBC and capital structure and its integration with risk in influencing performance (Hoyt & Liebenberg, 2011; Baxter *et al*., 2013; Vatavu, 2015; Hamidah, 2016). In the section that follows, these theories and their empirical application are discussed.

### 2.1 Dynamic tradeoff theory and empirical application

The challenge in analyzing insurance capital structure lies on knowing what to tradeoff as insurance capital structure is complex. As an extension of the tradeoff theory, a central claim of the dynamic tradeoff theory is that firms intend to choose the debt level by equating the costs of financial suffering and tax shield of advantage. According to Burkhanova, Enkov, Korotchenko, *et. al*., (2012) the theory undertakes "…that high capital adjustment cost at persistent level may vary capital structure of firm". This illustrates how capital structure reacts to RBC in anticipation of better performance. Simply, the theory foresees that "at a high debt ratio, firms may avoid bankruptcy cost by adjusting the optimal debt level" (Matemilola, Ariffin & McGowan Jr., 2012, p. 133). By tradeoff theory, insurers have more to tradeoff to balance equity and technical provision than non-insurers do with equity and debt. Table 1 present areas of tradeoff for insurers comparatively with noninsurers. The various areas highlighted in Table 1 constitute issues of concern for insurers in using equity. Technical requirements on the

other side, are fundamentally assessed amounts and are thus enclosed by high uncertainty", because it is the most essential source of asymmetric information relevant to external financing (Dhaene *et al*., 2015). Regulations (like RBC) suggest that financial debt is subservient to claims of policyholders, combined with asymmetric information problem, insurers get to a state where financial debt becomes risky to investors.

Table 1: Trade-off theory of capital structure in insurance and other institutions

| Area of trade off | Insurance | Non-insurance |
|---|---|---|
| Cost | Capital holding cost<br>Moral hazards<br>Adverse Selection (in claim and underwriting) | Interest payment<br>Bankruptcy; default risk<br>Adverse selection (in investment) |
| Agency Cost/conflict | Policyholders (customers)<br>Owners (Internal equity investors)<br>Managers | Managers<br>Owners (shareholders)<br>Investors (Debt-investors) |
| Tax | Double taxation | Not |
| Benefits | *Knows risk level to take<br>*High price charge<br>***Avoid financial distress | Tax shield benefits |
| Capital owners | Owner-policyholder | Owner-investor |

Source: Compiled from Cheng & Weiss, (2012)

Recent applications of the dynamic trade off theory shows that there is a target leverage that maximizes firm value and any deviation from the target should be adjusted if value (profit and wealth) maximization is imperative (Ibrahim & Abdul-Rahim, 2013). The authors further opined that it is only this that explicitly account for the adjustment (this connotes risk-taking) behavior. Other result shows that over levered firms moved toward target leverage quickly, probably to avoid financial distress associated with having above-target leverage (Dang, Kim & Shin, 2012). In another result, it was shown that increase in a firm's risk is caused by a fall in the firm's equity valuation (Dierker, Kang, Lee & Seo, 2015). In all, these outcomes are consistent with the predictions of dynamic tradeoff theory.

## 2.2 The theory of risk capital and empirical application

Theory of risk capital has been used in making argument for RBC, capital structure and performance, especially in financial firms like insurance which deal with customers and counterparties that are not prepared to bear significant default risk. The theory requires such firms to hold up sufficient equity capital to maintain an acceptable credit quality to meet their obligations and cover the financial consequences of its business risks (Erel, Myers & Read, 2015). It is the "capital needed to keep the firm's probability of ruin below some set level" (Shimpi, 2002: 27). It is also seen as equity investment which serves as backup obligations to liability holders, including creditors, customers, and

contract counterparties (Erel *et al.,* 2015). Combining these definitions, it appears that equity is that amount required to cushion any adverse effect of financial consequences of business's risks. The important thing to note in this theory is that it specifically identifies and addresses equity as one component of capital structure that has a link with performance and business risk. Empirical findings support the theory's prediction of normal and join probability distribution of returns from marginal allocation of risk-capital (equity) (Perold, 2005). Risk capital theory buds from the trade-off theory which focuses specifically on equity as risk-related capital. The theory is used within the context of value-maximization and risk which is a dimension that enters the sequence of relational discussion of capital structure and firm performance in this study. By this theory, equity is used and must be allocated to assess profitability, and make investment decisions. Thus, it provides a clearer explanation of the relationship between equity and firm performance by linking it to profitability (returns on equity). Previous work have attempted to used this theory in explaining (though passively) the relation between capital structure and performance. In such study, it is argued that risk capital (equity) is the present value cost of acquiring complete insurance against negative returns on the firm's asset (ROA) (Merton & Perold, 1993). The author's concluded that financial firms like insurance companies should not allocate equity back to business. They acknowledged that equity allocation is essential in evaluating risk and profitability for an existing portfolio, which is usually stable in the short run. This is another link which this theory passively mentioned business risk and performance which, as stated earlier, should be modeled into capital-performance continuum.

### 2.3 The prospect theory (PT) and empirical application
Developed in 1979 by the duo of Kahneman and Tversky as a behavioural decision theory, this theory has been used to elucidate risk-return relationship to observe firm's financial behavior (Fiegenbaum, 1990). CRP is the propensity to choose among different consequences under surroundings of probabilistic insecurity (Dan-Jumbo, 2016; Berglund, 2007). It refers to the tendency to engage in bahviours that are potentially harmful or dangerous, yet at the same time provide the opportunity for some positive outcomes (Mehdi & Hamid, 2011). The theory suggests that top management may likely retain a poorly performing unit when the loss resulting from its performance is relatively small but will switch its preference and select risky alternatives when the performance loss becomes large and potentially ruinous (Shimizu, 2007). As the name implies, the theory posits that a decision-maker would first of all reduces each alternative in a decision problem to some series of prospects, and then evaluates each prospect according to a value (return or performance) function which centers on a set reference point. According to prospect theory, when performance is between a (normal) reference point and nearing the threat point, firms are likely to exhibits high risk profile while retaining the business line performing poorly. Once performance reaches threat point, firms will likely prefer risk-averse behavior in which case they may divest from a poorly performing business and no improvement in performance is expected. This signals the presumption that high CRP is expected to lead to increased performance. In past studies PT was found to predict a positive CRP-return relationship (Holmes *et al*.,

2011). Prospect theory is use to analyses if firm's preference for higher risk result in higher performance when using the available capital or otherwise. This framework is further interpreted to mean that CRP could moderate the relationship between a firm's capital and its performance (Llopis, *et al*., 2013). In this study, a holistic framework for analyzing RBC is emphasized, which match these theoretical predicts but has been overlooked in empirical analysis, especially considering the differentiated and peculiar nature of insurance capital structure which is the center piece of capital related regulation like RBC. As discussed, it should be observed that in relation to different concepts explained here – namely RBC, capital structure, risk propensity, and performance, analysis can best be performed in an integrated and interactive framework since each of this concept is not mutually exclusive.

## 3. RBC Regime and Capital Structure: Insurance Perspective

The focus of discussions and analysis in this research is on capital structure of insurance companies and not necessarily on the complexities of risk-based capital determination and effect on performance. This is because there has not been an appropriate and reliable and acceptable RBC formula, on one hand, and sufficient researchable issue on the other hand and like theory development, RBC is still in its evolutionary stage and is yet to attain a level of scientific application for prediction (Petroni, 1996). However, it is important to establish a link between the regime and firm's capital structure so as to make justifiable argument for purposes of this investigation. In this sense, regulation which is one of the three insurance-specific contexts to which the tradeoff theory has predicted a link with capital structure is discussed (Dhaene *et al*., 2015). Before discussing this link, it is imperative to discuss the outlook of capital structure of insurers as shown in Table 2

Table 2. Simplified balance sheet of an insurer: 'Corporate Finance Style' and 'Insurance Style'

|  | **Capital Structure** | |
|---|---|---|
|  | **Asset** | **Liabilities** |
| Corporate Finance Style | ☐ Surplus of financial securities over technical provision | ☐ Equity & Financial debt |
| Insurance Style | ☐ Financial Securities | ☐ Equity & Technical provisions |

**Source**:          Adopted from Dhaene *et al*., (2015)

The above structure suggests that insurers tend to use less of debt-financing and more of self-financing (Dhaene *et al.,* 2015). From insurance perspective, the asset and liability arms of the capital structure have some sort of difference when compared with the typical corporate finance perspective of capital structure. Insurance asset is basically its financial securities without netting it over with technical provisions as it is with non-insurance firms. Similarly, insurers' liability is principally made up of equity and

technical provisions while the noninsurance firms have equity and financial debt. For example, when considering the first step of the tradeoff theory, tax benefits are balanced against risk of bankruptcy and in such situation, a business plan for underwriting and investment activities in securities are balanced against such risk for insurers (Dhaene *et al.,* 2015; Eling & Marek, 2014). This implies that such activities together with total assets and technical provisions would all be fixed. This will reduce capital structure problems to financing of the difference between assets and technical provision and balancing of equity and technical provision, the latter is the focus of capital structure in insurance literature (Fier, McCullough, & Carson, 2013). If asked if RBC do actually lead to significant change in insurer capital structure such that the performance of insurance firms is affected by such change, answers would vary across different respondents. However, from the statement that "…capital regulation is important in determining capital structure" we can see an answer for this investigation (Dhaene *et al.*, 2015, p. 8). Some authors acknowledged that imposition of capital requirement actually reduced bankruptcy in US insurance industry by stopping small risky insurers from entering the market (Dhaene *et al.,* 2015). This is so because, such risky insurers will not be able to raise sufficient fund to shore up its capital base to meet such capital requirement. Although the link between capital requirement and capital structure was found to be weak, it nonetheless, has established that there is a link. Moreover, regulations do matter especially to small insurers; low capitalized firms as it pressures them to accelerate their adjustment to target capital structure. The above discussions imply that studies involving insurance regulation, most of the times focus on capital structure. This is the reason why this study attempts to propose the framework for analyzing if capital structure under RBC would affect insurer performance given a preferred risk profile.

## 4. Toward A Conceptual Framework for Capital Structure Under RBC Regime

Based on the above discussions, a framework for capital structure integration with CRP of insurers in relation to performance under RBC regime is proposed in this section. The said framework will assist in conceptual understanding of issues relating to RBC from the perspective of capital structure, risk profile and performance of insurance firms. As stressed earlier, RBC regulation have significant incremental influence on a firm's capital structure just as risk profile have a role to play in capital structure to explain firm performance. Consequently, if theoretical prediction that capital and performance are positively related is to hold for insurers, there is need to integrate CRP in capital structure-performance framework. Again, as insurance capital structure differs, it will be necessary to examine if according to risk capital theory firms with fear of bankruptcy and preference for better performance would be risk takers. Increase in unpaid claims, creditors and accruals could be one way to increase capital in which case there will be sufficient funds for investment or left idle if not invested. Firms that attempts to reduce idle funds which are typically unproductive would embark on high risk investment to generate high returns. Prospect theory predict positive moderation

effect of RBC on capital-performance relation (Holmes *et al.*, 2011; Shimizu, 2007 etc). This prediction must be investigated using the right framework. Practically, whether unpaid claims, creditors and accruals can significantly alter capital structure composition and if being a risk taker can bring commensurate (high) returns is still a debate that should be investigated empirically using the right framework. Recent empirical study suggested a framework that explains the moderation effect of risk taking in the guise of corporate innovation activities (Yung-Chieh, 2016). From the precepts of PT and as explained in past studies, corporate innovation activities represent an important measure of risk-taking because it connotes an act of committing significant resource to activities with significant possibilities of failure in expectation of high returns. This implies that risk profile moderates a firm's capital structure and performance relationship. In explaining corporate innovation activities as representing risk-taking behavior, past study shows comparatively that capital allocation and R&D investment are typically coupled with larger sum of investment…slower returns and higher risk, while the allocation of capital between R&D and capital expenditure item reflect managers' preference to take risk (Zhou & Huang, 2016). The authors concluded that "R&D investment has higher risk because of its large amount of inputs, possibility of uneven distribution of benefits and high uncertainty, (p. 25)"

Empirical review further reveals two competing hypotheses on capital structure- risk relation - namely the finite risk paradigm and excessive risk paradigm. These two paradigms explain the interaction between capital structure and business risk. Whereas the finite risk paradigm states that insurers choose capital and risk level to achieve solvency risk target, the excessive risk paradigm holds that more risk taking in one area is compensated by less risk taking in another area, thus high capitalization should correlate positively with business risk. However, while the finite risk paradigm favors this positive correlation, the excessive risk paradigm explains cases where such correlation could be negative. Also, on risk and capital structure interaction, discussions have linked the effect of regulation on the decision to follow either of these paradigms. In other words, there are some empirical studies that link a firm's capital structure and its risk profile to regulations (e.g. Shim, 2010). Results from some of the studies shows that regulatory pressure positively affects changes in capital of insurers with low capitalization. Moreover, among the key financing decisions that link a firm's capital decision and performance is investment which is one of the two major activities engaged by insurance companies; the other activity being underwriting. It is contended that capital structure decision of insurers are made within the framework of enterprise risk and two categories of this risk are aligned with two principal activities namely investing and underwriting (Baranoff *et al.,* 2007). Risk is thus an inextricable part of organizational life and is therefore, the bedrock of any successful business the world over (DanJumbo, 2016). Implicitly, these characterizations must be managed simultaneously well otherwise it may incur enormous price that can sink the firm. Hence, RBC should be discussed from the perspective of capital structure which itself should be adequately measured using equity ratio, technical provision ratio and analyze

interactively with both quantitative and qualitative measures of CRP in relation to performance as illustrated in Fig 1 that follows:

The above framework shows a holistic view of capital structure, firm's risk profile and performance under RBC regime. The proposed framework gives insight into three basic issues that have suffered clear empirical consideration which need to be reconsidered.

•   First, it shows that RBC should also be discussed within the context of capital structure. This is because RBC requirement and capital structure both are practically inextricable. The former is an activity that directly affects the later.

•   Measurement of capital goes beyond one dimension or one attribute of debt ratio to include equity ratio. Particularly, for insurers, the used of debt ratio as proxy for capital structure is inappropriate, in its place technical provision ratio should be used in order to take into consideration the opportunity costs of the non-interest-bearing liabilities such as unpaid claims, creditors and accruals.
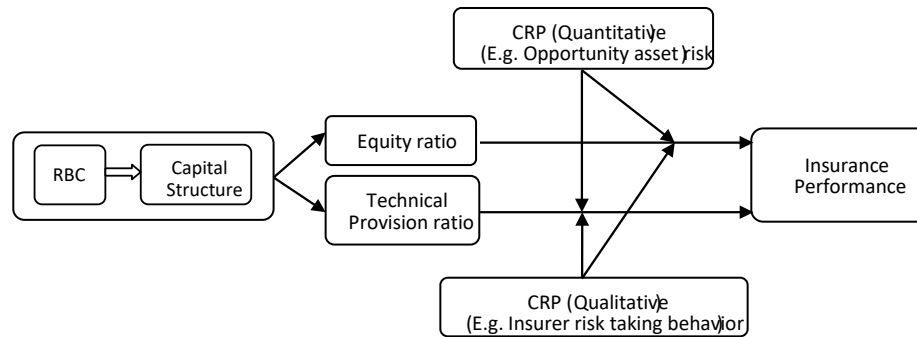


Figure 1: Conceptual framework for RBC, capital structure, risk propensity and performance

A broader understanding of the role of capital structure would require incorporating firm's level of risk it is willing to take via the deployment of the capital. Thus, high performance, by theory will imply that firms be risk takers by investing the capital risky in investment portfolios.

## 5. Conclusion

The focus of this paper was to explore how insurance firms tinker with capital structure in compliance with RBC amidst their ultimate goal of wealth and profit maximization as well as stakeholder satisfaction. Particularly it dealt with how insurers exploit the potential synergies among various internal and external sources of capital to respond to RBC mandates and integrate the risk components to achieve desired performance. Capital structure is basic to every firm, RBC is to strengthen capital based; risk is also an integral part of firm existence and the level assumed differs from one firm to another. In this study, we have demonstrated that under RBC regime, a firm's capital structure is affected positively and for insurance firms, different component of capital structure-namely equity, insurance fund, unpaid claims, creditors and accruals are also affected

as such empirical investigation in this context is highly imperative. We have also demonstrated that such investigation should apply the right - integrated – research framework for reliable, robust and unambiguous results. It is with this that a holistic understanding of capital structure would be achieved while observed contradictions, ambiguities and inconclusive empirical findings on firm's capital structure and performance could be resolved. It is contended that with the integration of CRP, capital structure could best explain the variations in firm performance. Such framework would be important to corporate management guide them on performance improvement via capital structure, financing and corporate risk management decisions. We have explained and shown that a direct research framework of capital structure and firm performance does not provide a holistic and comprehensive analysis of capital structure effect on performance in all organizations especially insurance firm which nature of business is highly intertwined with different levels of risk propensities. Thus, for insurers, capital structure, its analysis in relation to performance will require a different measurement and different framework.

In view of the above, this paper suggested a conceptual framework emphasizing, specifically on equity ratio technical provision ratio as measures of capital structure and CRP as a moderating variable and performance as responsive variable within insurance discipline. The framework is typically a moderation research framework. This framework emerged following a critical review of relevant theory and empirical applications. Each theory has been discussed in this study with focus on their supporting argument on relevant path in the framework. The dynamic tradeoff theory recognizes a target level of capital and firm's adjustment behavior toward the target as a precondition for solvency. It argues that such adjustment is risk behavior. It supports the direct path between capital structure and firm performance. Theory of risk capital supports the path between RBC and capital structure. Finally, prospect theory supports the intervening role of CRP in capital structure-performance relation by arguing that a higher capital would attract higher risk taking, and a higher risk taking should result in higher returns. By prospect theory, firm performance is a function of the level of risk assumed regardless of the volume of capital acquired. It is through this framework that practitioners and academics would best explain and understands capital structure, CRP and performance under capital related regulations for insurers in particular and other firms in general.

## AUTHOR CONTRIBUTION

Sarfaraz Ahmed Bhutto: The main idea of research is contributed by the first author and all correspondence in the review process is being performed by him.
Ikhtiar Ali Ghumro: The visualization and setting of the conceptual model.
Zulfiqar Ali Rajpe: Theoretical background and its linkage with the study.
Saifullah Shaikh: Proofreading, typesetting, and flow of research paper

**DATA AVAILABILTY STATEMENT**

This study has taken an extensive review on RBC and contributed a conceptual model. Hence, no quantitative data was used.

**CONFLICT OF INTEREST**

No conflict of interest

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## REFERENCES

Abdeljawad, I., Mat-Nor, F., Ibrahim, I., & Abdul-Rahim, R. (2013). Dynamic capital structure Trade-off theory: Evidence from Malaysia. *International Review of Bus. Research Papers*, *9*(6), 102-110.

Aghoghobvia, K. (2005). *Critical Success factors for profitable management of insurance Institutions.* Paper presented at the Nigerian Insurers Association Workshop in Lagos.

Baranoff, E. G., Papadopoulos, S., & Sager, T. W. (2007). Capital and risk revisited: A structural Equation model approach for life insurers. *Journal of Risk and Insurance*, *74*(3), 653-681

Baxter, R., Bedard, J. C., Hoitash, R., & Yezegel, A. (2013). Enterprise risk management program Quality: determinants, value relevance, and the financial crisis. *Contemporary Accounting Research*, *30*(4), 1264-1295

Berglund, H. (2007). Risk conception and risk management in corporate innovation: Lessons from Two Swedish cases. *International Journal of Innovation Management 11*(4), 497–513.

Burkhanova, A., Enkov, V., Korotchenko, D., Kichkaylo, M., Marchenko, K., Rozhdestvenskaya, A. ...& Ulugova, A. (2012). Dynamic Trade-off Theory of Capital Structure: an Overview of Recent Research. *Journal of Corporate Finance Research*, 3 (23), 70-86.

Cheng, J. & Weiss, M. A. (2012). The role of RBC, hurricane exposure, bond portfolio duration, And macroeconomic and industrywide factors in property–liability insolvency prediction. *The Journal of Risk and Insurance*, 79 (3): 723-750.

Cheng, J. & Weiss, M. A. (2013). Risk-based capital and firm risk taking in property-liability Insurance. *The Geneva Papers on Risk and Insurance - Issues and Practice* 38, 274-307.

Cheng, J., & Weiss, M. A. (2012). Capital structure in the property-liability insurance industry: Tests of the tradeoff and pecking order theories. *Journal of Insurance Issues*, 1-43.

Dang, V. A., Kim, M., & Shin, Y. (2012). Asymmetric capital structure adjustments: New Evidence from dynamic panel threshold models. *Journal of Empirical Finance*, *19*(4), 465-482.

Dan–Jumbo T. C. (2016). Managerial perspective on risk and risk taking of quoted companies in Nigeria. *Int'l Journal of Advanced Academic Research, Social & Management Sciences, 2* (11), 57-64.

Dhaene, J., Hulle, C., Wuyts, G., Schoubben, F., & Schoutens, W. (2015). Is the capital structure Logic of corporate finance applicable to insurers? Review and analysis. *Journal of Economic Surveys*, 1-21

Dierker, M. J., Kang, J. K., Lee, I., & Seo, S. W. (2015). Risk changes and the dynamic trade-off Theory of capital structure. business.kaist.ac.kr

Eling, M. & Marek, S. (2014). Corporate governance and risk taking: evidence from the U.K. and German insurance markets. *Journal of Risk and Insurance, 81*(3), 653-682.

Erel, I., Myers, S. C., & Read, J. A. (2015). A theory of risk capital. *Journal of Financial Economics*, *118*(3), 620-635.

Fiegenbaum, A. (1990). Prospect theory and the risk-return association: An empirical examination In 85 industries. *Journal of Economic Behavior &* Organisation, *14*(2), 187-203.

Fier, S. G., McCullough, K. A. & Carson, J. M. (2013) Internal capital markets and the partial Adjustment of leverage. *Journal of Banking and Finance* 37(3): 1029–1039.

Florio, C., & Leoni, G. (2017). Enterprise risk management and firm performance: The Italian Case. *The British Accounting Review*, *49*(1), 56-74.

Gaganis, C., & Pasiouras, F. (2013). Financial supervision regimes and bank efficiency: International evidence. *Journal of Banking and Finance* 37(12): 5463–5475.

Hamidah, H. (2016). Analysis of factors affecting the capital structure and profitability in Indonesian's manufacturing company year 2009 – 2013. *Jurnal Keuangan Dan Perbankan, 20*(2). Retrieved from http://jurnal.unmer.ac.id/jkdp/article/248

Hartman, D. G., Braithwaite, P., Butsic, R. P., *et al.* (1992) Property-casualty risk-based capital Requirement - A conceptual framework. *The Forum Spring 1992, Casualty Actuarial Society, New York*, 211-280.

Holmes, R. M., Bromiley, P., Devers, C. E., Holcomb, T. R., & McGuire, J. B. (2011). Management theory applications of prospect theory: Accomplishments, challenges, and opportunities. *Journal of Management*, *37*(4), 1069-1107.

Hoyt, R. E., & Liebenberg, A. P. (2011). The value of enterprise risk management. *Journal of risk And insurance*, *78*(4), 795-822.

Llopis, O., Garcia-Granero, A., Fernández-Mesa, A. & Alegre, J. (2013). *Managers' risk taking Propensity and innovation in* organisation*s: The mediating influence of employees' perceived risk taking climate*. 35th DRUID Celebration Conference 2013, Barcelona, Spain, June 17-19.

Matemilola, B. T., Bany-Ariffin, A. N., & McGowan Jr, C. B. (2012). Trade off theory against Pecking order theory of capital structure in a nested model: Panel GMM Evidence from South Africa. *The Global Journal of Finance and Economics*, *9*(2), 133-147.

Mehdi, A. A., & Hamid, N. (2011). Entrepreneurship and risk – taking. *International Conference On E-business, Management and Economics*. IACSIT Press, Singapore

Merton, R. C., & Perold. A. F. (1993). Theory of risk capital in financial firms. *Journal of applied Corporate finance, 6,* 16–32.

Muhlnickel, J., Weiss, G. N., & Schmidt, A. C. (2016). *Capital and the performance of insurance Companies*. University of LeipzigChair of Sustainable Fin. & Banking, Working Paper, (16-05)

Mutenga, S. & Staikouras, S. K. (2007). The theory of catastrophic risk financing: A look at the Instrument that might transform the insurance industry. *The Geneva Paper, 32,* 222-245.

Perold, A. (2005). Capital allocation in financial firms. *Journal of applied corporate finance, 17*:110–18.

Petroni, K. R., & Shackelford, D. A. (1996). *The effect of risk-based capital on life insurers' Investment portfolios*. Wharton Financial Institutions Center, University of Pennsylvania.

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.

Shim, J., & Lee, S. H. (2016). Dependency between risks and the insurer's economic capital: A Copula-based GARCH Model. *AsiaPacific Journal of Risk and Insurance*. Forthcoming, doi 10.1515/apjri-2016-0021

Shimizu, K. (2007). Prospect theory, behavioral theory, and the threat-rigidity thesis: Combinative Effects on organisational decisions to divest formerly acquired units. *Academy of Management Journal*, *50*(6), 1495-1514.

Shimpi, P. A., & Re, S. (2002). Integrating risk management and capital management. *Journal of Applied Corporate Finance*, *14*(4), 27–40

Shubita, M. F., & Alsawalhah, J. M. (2012). The relationship between capital structure and Profitability. *International Journal of Business and Social Science,* 3(16).

Vătavu, S. (2015). The impact of capital structure on financial performance in Romanian listed Companies. *Procedia Economics and Finance*, *32*, 1314-1322.

Yung-Chieh, C. (2013). The effects of capital structure on the corporate performance of Taiwan-Listed photovoltaic companies: A moderator of corporate innovation activities. *Journal of Global Business Management*, *9*(1), 92.

Yusof, A. Y., Lau, W. & Osman, A. F. (2015). Risk-Based Capital Framework: Conventional vs. Takaful Operators. *Journal of Management Research*, 7(2), 1-9

# Sentiment Analysis Using Twitter Data: An Exploration of Consumer Misbehavior

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## Abstract

This research is aimed to explore consumer misbehavior sentiments during a discounted sale event by using Twitter data. Consumers have been observed to be pushing each other and fighting over discounted products in the past, causing harm to employees and fellow consumers. Such incidences make it crucial to highlight the causes of consumer misbehavior taking place in the retail environment. By using the sentiment analysis technique, the current research explored the sentiments of the consumers through the tweet's consumer tweeted during a sale event. The present study took the tweets on the occasion of the Mother's Day sale. The keywords #Khaadi, #SanaSafinaz, and #Alkaram were specified as the tweet-identifying hashtags. The reason for selecting these keywords instead of the hashtag Mother's Day sale was to keep it Pakistan-centric. A total number of 489 tweets were downloaded, out of which 222 tweets were found to have the expression of Neutral, 170 tweets with the Positive status, and 94 tweets were found to be Negative. The negative tweets were further analyzed to find the factors making these negative emotions. The findings resulted in the emergence of five stimulating factors: Superabundant, shortage of checkout counters, payment and delivery, violation of corporate social responsibility, and privacy violation. These factors were found to instigate misbehavior in the consumers. Thus, retailers need to reflect on eradicating these factors from the environment prudently. This paper is one of a few that explores the sentiments of tweeters about consumer misbehavior during the event of a sale.

*Keywords: Consumer Misbehavior, Sentiment Analysis, Twitter, Pakistan, Apparel Industry, Consumer Sentiment.*

**JEL Code**: M310

## 1. Introduction

This era of social media, a time of technology and vast online networks, has profoundly changed how everyone perceives things and interacts with each other (Zolfagharian & Yazdanparast, 2017). The availability and accessibility of social media applications such as Twitter, Facebook, and Tumbler have made it easier for consumers to express their feelings and emotions (Hea, Zha, & Li, 2013). This inclination of the consumers to share their personal experiences, lifestyles, and events on social media applications has proposed several astonishing opportunities for marketing researchers and managers to scrutinize their consumption behaviors (Davis & O'Flaherty, 2012).

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Knowing about consumer behavior has been an essential part of the marketing literature (Choudhary, 2014). The phenomenon of consumer misbehavior can be defined as a disrupted behavior from standardized expected behavior (Lennon, Kim, Lee, & Johnson, 2017). Consumer misbehavior is pernicious and ubiquitous misbehavior that the consumers execute against employees and fellow consumers (Amarnani, Bordia, & Restubog, 2018). The consumer misbehavior in the retail setting over discounted products has been studied by a few researchers in the past (Lennon, Lee, Kim, & Johnson, 2014). Consumer misbehavior during a discounted sales event has caused a Wal-Mart employee's death in the Long Island.

The employee was killed by the pushy and wild consumers who were in a hurry to get through the store's doors to buy discounted stuff. The crowd did not care about the trampled employee's hurry to get to the products causing him to die. Four other employees got seriously injured along with him, which included a pregnant woman (Blau, 2015). The crowd refused to extend help to the injured and said they have been waiting for the store to open since 5 am. It was a troop of around 2,000 shoppers (Dubuis & Bucktin, 2015). This event was a shocker for everyone and required some drastic changes in the retailers' security system (Blau, 2015). South Wales police confirmed receiving multiple calls from the Tesco employees for their safety because of the crowd who showed up for the Black Friday sale (Burke & Agencies, 2014).

In recent research, Nawaz and Khan (2020) found Pakistani consumers misbehaving during the Black Friday sale. Similarly, during a sale event in Pakistan, women were found fighting over discounted clothes. The video of these privileged women fighting over clothes went viral. It was the most talked about topic on Twitter at that time (Ghazi, 2015). It specifies the misbehaving tendency of the consumers during discounted sale events. This event also indicates social media usage by Pakistani consumers to express their sentiments on such occasions.

Moreover, such incidents and behaviors from the consumers make it obligatory for the retailers to control these situations. These incidents make the situation worse for fellow consumers and employees. Thus, the first step in solving this problem is to explore the factors that stimulate the consumers to misbehave while hunting for discounted items.

The service encounter point in a retail environment is where consumers and employees interact with each other. This interaction can be positive or negative (Keeffe, Russell-Bennett, & Tombs, 2008). The retail industry dynamics are constantly evolving, and consumer and retailer relationships have been transforming due to the consumer operating checkout payment systems (Taylor, 2018). The researchers have studied various industries to know about consumer behavior. Some of those industries are as follows: Hypermart (Amelia & Ronald, 2017), professional services (Greer, 2015), restaurant/hotels, household service firms, health clubs, and general retail (Harris & Daunt, 2011), restaurants (Reynolds & Harris, 2006), hospitality industry (Reynolds & Harris, 2009), retail outlets/supermarket (Harris, 2010), bars, hotels and restaurants (Daunt & Harris, 2012; Daunt & Harris, 2014), the retail sector (Harris & Daunt, 2013), online music (Harris & Dumas, 2009), normal shoppers (Dootson, Johnston, Beatson, & Lings, 2016), clothing (Dodd, Linaker, & Grigg, 2005; Lennon, Lee, Kim, & Johnson, 2014), and service environment (Daunt & Greer, 2015). All of these

mentioned studies talk about misbehavior involved in different industries to study the phenomenon. The need to get the answers for consumer misbehavior escalates even further, especially in the apparel industry, keeping in mind the reasons mentioned above. The textile sector of Pakistan is a vital part of the manufacturing sector with the longest production chain. According to the Pakistan Economic Review, the textile sector showed an increase of 0.12% when it went to 0.78% from 0.66% (Survey, 2017). Pakistan's textile industry is self-sufficient when it comes to manufacturing cotton, fabric, or knitting. This industry has an advantage over many other countries because of the strong chain of processes. The apparel industry has shown good growth both at the local as well as at international levels. In this industry, the readymade garment sector contributed 9.36% in the economic value. The ministry of textile developed a five-year plan from 2014 to 2019. This plan was expected to produce 26 billion dollars in the textile industry by the end of 2019 (Survey, 2014). The statistics exhibit the potential growth and significance of this industry for the retailers and the researchers. All these factors prove to be crucial to know about the misbehavior of the apparel consumers. Sentiment analysis enables the researchers to analytically extract and categorize consumer sentiments about the services, experiences, and products expressed in social media to know about market trends and consumer attitudes (Rambocas & Pacheco, 2018). Consumer misbehavior can be described as the social behavior that negates and disrupt the commonly set standards of retailing. Such misbehavior can cause physical, psychological, or material loss to fellow consumers, retail employees, and retailers. In such conditions, most of the time, the consumers who are not misbehaving get mishandled by others (Fullerton & Punj, 2004). It is a challenge for marketing researchers to explore the factors that can motivate consumers to misbehave sometimes (Lennon et al., 2017). Retailers should be able to explore ways to understand Big Data more efficiently. Retailers observe and monitor the actions, interactions, and behaviors of the consumers so that they can target and segment their products according to the preferences and choices of the consumers. The retailers are getting help from Big Data in placing, storing, and controlling the inventory. Big Data is also enabling retailers to make personalized products for each consumer individually (Brown, Chui, & Manyika, 2011). Thus, considering the significance of data in today's marketing practices present study involved analyzing Twitter Data to do the sentiment analysis. Therefore, the purpose of the current research is to explore and analyze the sentiments of the Pakistani consumers of the apparel industry through the sentiment analysis of their tweets during a sale event.

## 2. Literature Review
According to Everton, Jolton, and Mastrangelo (2007), it must go against the organization's norms regardless of the societal norms for a behavior to be called misbehavior. Consumer misbehavior can turn the serenity of the marketplace into a hubbub for both the retailers and the consumers. This behavior can harm the values of the retail culture (Daunt & Greer, 2015). The consumer misbehaviors are different from the other complaint-related legitimate behaviors in which the consumer can file a complaint against the organization, switch the brands for a short time of period or permanently (Drennan et al., 2007). According to Yi and Gong (2006), managing

consumer misbehavior is as important as employee misbehavior. Organizations need to control the negative consumer to combat its negative effects to prevent other consumers from misbehaving.

In the literature on consumer misbehavior, researchers have used different methodologies to conduct studies about the phenomenon. Some of the studies used methodologies dividing into two major categories: quantitative and qualitative research approaches: Chen, Hu, and King (2018) researched in Taiwan by using administrative questionnaires. Keeffe et al. (2008) used a quasi-experimental study design. Lee et al. (2014) conducted an empirical study and compared Structural Equation Modeling (SEM) with competing models. In a recent study, Cova, Gaglio, Weber, and Chanial (2018) used the case study approach to know about France's mutual insurance company behaviors. Fong, So, and Law (2017) used the Critical Incident Technique (CIT) for collecting the data from the employees. Gatzweiler, Blazevic, and Piller (2017) used a netnography study approach which is an interpretive research design to know about the deviance phenomenon. Booa, Mattilab, and Tana (2013) conducted two qualitative studies to make comparisons. Although the authors have used various types of methodologies to know about consumer misbehavior, no research has been done using the sentiment analysis approach, which leaves a significant gap in the literature.

The sentiment analysis uses the machine learning process to acquire knowledge consumer reviews about a specific product, phenomenon, or situation (Davis & O'Flaherty, 2012). An analytical review of the studies published using sentiment analysis from the year 2008 to 2016 was done by Rambocas and Pacheco (2018). According to them, 72% of studies were conducted by the discipline related to computer studies, and the remaining 28% of the studies were conducted by all the other disciplines. The marketing discipline had 9% studies. This shows the nascent stream of marketing research through this technique and the gap that exists. Therefore, it depicts the significance of doing sentiment analysis within the marketing discipline so that the consumers' feelings, emotions, and perceptions can be known.

Attributions are the interpretations that people create to make sense out of certain events and situations. To understand the experiences they have with others, people make attributions (Weiner, 1985). Attribution theory talks about how people need to make inferences of their experiences and involve in the attribution actions. The basic assumption about the people is that they are inexperienced naïve people who want to make sense of the happenings surrounding them (DeJoy, 1994). The attribution theory tries to explain the world's experiences and determine the cause of behavior or an event (Jackson, 2019). There are different types of attributions (Weiner, 1985). Firstly, personal attributions refer to the desires, beliefs, and intentions related to purposeful human behavior (DeJoy, 1994). The impersonal attributions refer to the cause that does not involve the purpose or intent. In both these attributions, people tend to explain why a behavior took place. Dispositional attribution is the third type of attribution in which people make a specific judgment about another person's behavior. They observe and infer other person's stable dispositions such as attitudes, traits, and values (Weiner, 1985). The last attributions are the blame attributions and responsibility attributions related to the judgments of moral issues. These attributions happen when some adverse

event occurs, and people try to find the person to be held responsible and to blame (DeJoy, 1994). Consumers in a retail environment are expected to draw inferences based on their perceptions of others.

## 3. Research Methods

Mäntylä, Graziotin and Kuutila (2018) defined sentiment analysis as the qualitative methodology and tool that allows the interpretation of the textual data. Knowing about the time horizon helps in selecting strategies that need to be formulated for the research design (Creswell, 2003). This research's time horizon was cross-sectional because this study was conducted on a specific period.

### 3.1. Research Context

The current research has chosen readymade apparel brands as the research context. Few studies took apparel brands as the context to study the consumer misbehavior phenomenon. This study, however, chose the readymade apparel brands from Pakistan because of the performance of the textile sector in the economy. According to the Pakistan Economic Survey, the textile sector has the highest performance, with a Quantum Index Manufacturing (QIM) of 20.91 (Survey, 2019). The readymade apparel industry has developed as one of the most important small-scale sectors of the country. The products have demand both in the local and international markets. A recent study by Gilal, Zhang, Gilal, and Gilal (2020) specified the influence of the fashion apparel industry regarding consumer segmentation and positioning by investigating a theoretical framework of age and gender. Thus, making it a crucial sector for research.

### 3.2. Participants

This study is qualitative in nature, so probability-based sampling cannot be applied here because that is mainly used to draw inferences about the population. Instead of that, purposive sampling was used through which a group of tweets was selected on the basis of specific keywords. Those keywords were carefully chosen to do the needed analysis. For this purpose, tweets were collected from $3^{rd}$ to $13^{th}$ May because the sale date falls in that week. The tweets were extracted on $13^{th}$ May. The study took the tweets on Mother's Day sale as the participants because of discounted sales event was in place.

### 3.3. Procedure

For the collection of data, the social media site Twitter was selected. Because Twitter has 3.1 million Pakistani users (Sci-tech, 2017) and the content is publicly available. The keywords Khaadi, Sana Safinaz, and Alkaram were specified as the tweet-identifying words. Then the tweets of consumers with the hashtags of Khaadi, Sana Safinaz, and Alkaram were extracted for the specified period. The reason for selecting these keywords instead of the hashtag Mother's Day sale was to keep it Pakistan-centric. The time limit of $3^{rd}$ to $13^{th}$ May enabled the data to be Mother's Day centric as it was collected during that day.

After collecting the tweets, the descriptive analysis was done. Then the tweets were saved in an Excel file to conduct sentiment analysis. For this purpose, an online analysis tool MonkeyLearn was used. MonkeyLearn is an online machine learning website that allows the topics to be extracted from the data and the expressed textual sentiments in the form of chats, tweets, articles, reviews, and more (Maguire, 2018). This analysis divided the tweets into three major sentiment categories: Neutral, positive, and negative. From this data, the tweets with negative sentiments were excavated. Only the negative tweets related to consumer misbehavior were analyzed and were used to extract the desired themes. The negative tweets related to any other issue were not considered to achieve the research objective. The graphical representation of this whole process is presented in figure 1.
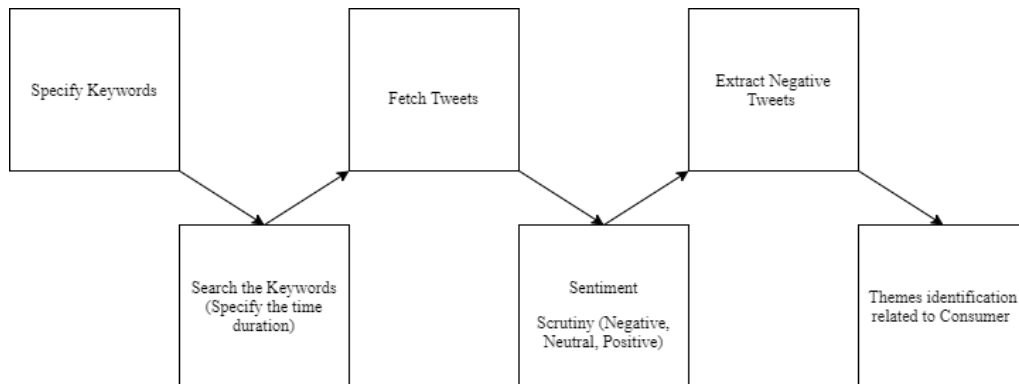
Figure 1. Data Collection and Analysis Process of Tweets

## 4. Findings

From Pakistan's apparel brands, the tweets mentioning Khaadi, Sana Safinaz, and Alkaram were used. The descriptive statistics of these tweets are presented below:
The statistics of the tweets were calculated to know about the frequency of tweets accumulated on weekdays.

Table 1 Weekly Statistics

| Day | Frequency | Percentage |
|---|---|---|
| Monday | 74 | 15.23 |
| Tuesday | 49 | 10.08 |
| Wednesday | 45 | 9.26 |
| Thursday | 32 | 6.58 |
| Friday | 90 | 18.52 |
| Saturday | 105 | 21.60 |
| Sunday | 91 | 18.72 |
| Total | 486 | 100.00 |

The table mentioned above shows that weekends are the days when most of the tweets were tweeted. The frequency for Saturday is 105, with a percentage of 21.60. This makes Saturday the most tweeted day of the week, followed by Sunday and Friday.

Table 2 Tweet Type Statistics

| Type | Frequency | Percentage |
|---|---|---|
| Tweet | 269 | 55.35 |
| Retweet | 124 | 25.51 |
| Reply | 93 | 19.14 |
| Total | 486 | 100.00 |

After knowing the frequencies of tweeting with regards to the days, the tweet types were analyzed. The type of the tweet is related to the way of a tweet. Three types of tweets can be tweeted; 1) Tweet, 2) Retweet, and 3) Reply. The tweet is something that a tweeter writes while using the Twitter account. The retweet has been tweeted by one person and republish by another person on their profile. Finally, the reply is when a tweeter answers someone else's tweet. Table 2 shows that 55.35% were tweeted, 25.51% were retweets, and 19.14% replied to other tweeters. This analysis means that most of the tweets were in the form of the original condition that tweeters wrote.

The hashtags are the words written in conjunction after the sign of #. These hashtags help tweeters in searching the different keywords. On the basis of these hashtags, the Twitter trends are formulated. The Twitter trends vary from country to country and also have a worldwide trends option. This worldwide trend option enables Twitter users to know what is happening around the globe. Thus, the hashtags hold significant importance in Twitter-verse.

Table 3 Most Commonly Used Hashtags

| Hashtag | Frequency | Percentage | Percentage (valid) |
|---|---|---|---|
| #khaadi | 39 | 10.54 | 31.45 |
| #mothersdayshop | 15 | 4.05 | 12.10 |
| #alkaram | 13 | 3.51 | 10.48 |
| #ayezakhan | 7 | 1.89 | 5.65 |
| #sanasafinaz | 6 | 1.62 | 4.84 |
| #fashion | 5 | 1.35 | 4.03 |
| #khaadiunstitched | 5 | 1.35 | 4.03 |
| #lawn | 5 | 1.35 | 4.03 |
| #safinaz | 5 | 1.35 | 4.03 |
| #casualstyle | 4 | 1.08 | 3.23 |

| #clothing | 4 | 1.08 | 3.23 |
| #fashionforward | 4 | 1.08 | 3.23 |
| #festive | 4 | 1.08 | 3.23 |
| #gauravgrover | 4 | 1.08 | 3.23 |
| #indonesian | 4 | 1.08 | 3.23 |
| Total (valid) | 124 | 33.51 | 100.00 |
| Other | 246 | 66.49 | - |
| Total | 370 | 100.00 | - |

For the current study, the hashtags mentioned above were used most commonly. Out of all these hashtags, the most famous ones are #Khaadi, #MothersDayShop, #SanaSafinaz, and #Alkaram. The sources or the devices tweeters used to tweet were analyzed.

Table 4 Sources

| | Frequency | Percentage | Percentage (valid) |
| --- | --- | --- | --- |
| Twitter for Android | 163 | 33.54 | 35.13 |
| Twitter for iPhone | 115 | 23.66 | 24.78 |
| Twitter Web Client | 60 | 12.35 | 12.93 |
| Facebook | 48 | 9.88 | 10.34 |
| Google | 38 | 7.82 | 8.19 |
| WordPress.com | 9 | 1.85 | 1.94 |
| Instagram | 8 | 1.65 | 1.72 |
| IFTTT | 4 | 0.82 | 0.86 |
| Twitter Lite | 4 | 0.82 | 0.86 |
| Cloudhopper | 3 | 0.62 | 0.65 |
| Hootsuite | 3 | 0.62 | 0.65 |
| TweetDeck | 3 | 0.62 | 0.65 |
| indozstyle | 3 | 0.62 | 0.65 |
| MailChimp | 2 | 0.41 | 0.43 |
| Bebo Fashions | 1 | 0.21 | 0.22 |
| Total (valid) | 464 | 95.47 | 100.00 |
| Other | 22 | 4.53 | - |
| Total | 486 | 100.00 | - |

The above table shows that 33.54% of tweeters used the mobile app through the android interface, whereas 23.66% of tweeters used iPhones. Since Twitter is an app rather than a web application, most tweets were tweeted from mobile phones.

Sentiment analysis is a data mining technique commonly used to do the analysis of online expression in the form of textual data (Rambocas & Gama, 2013). The sentiment analysis determines the nature of consumers' attitudes towards a phenomenon and categorizes it into negative, neutral, and positive categories (Rambocas & Pacheco, 2018). A total number of n= 489 tweets were downloaded, out of which 222 tweets were found to have the expression of Neutral, 170 tweets with the Positive status, and 94 tweets were found to be Negative.  Some examples of the categorized tweets into Positive, Neutral, and Negative are as follows*:*

*Positive: "I love Beechtree and Sana Safinaz"*
*Positive: "Khaadi has the best kurtiss" (Shirts)*
*Positive: "I only like khaadi and generation"*
*Neutral: "When you want to be the first one to pick up new Sana Safinaz lawn"*
*Neutral: "Leave it. I heard there is a good collection at Alkaram"*
*Negative: "Got myself a Sana Safinaz kurti online but I don't like it at all. What to do"*

For the current study, the sentiment analysis of the tweets from Khaadi, Sana Safinaz, and Alkaram was done. The attitude of the consumers towards the doorbuster sale on Mother's Day was analyzed.

Firstly, the tweets for all three brands were analyzed individually, followed by a collective analysis. The tweets mentioning the term Khaadi were extracted and then analyzed for sentiment analysis.
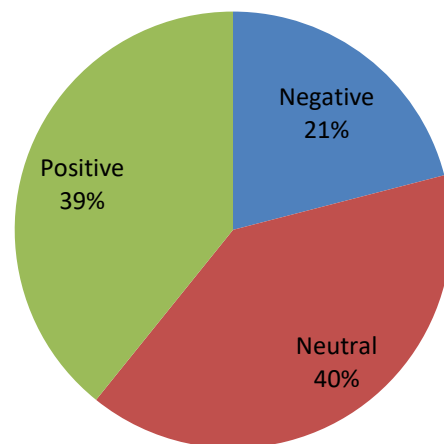


Figure 2. Sentiment Analysis of Khaadi Tweets

In the tweets, 39% of consumers had a positive attitude towards the Mother's Day sale event. But 21% of consumers had a negative opinion about this sale phenomenon. This negative opinion would have shaped because of certain factors. Out of those factors, one can be of consumer misbehavior with each other or with the employees. The percentage of 21 is high; it is almost near to the percentage of positive attitudes. On the other hand, 40% of consumers had a neutral attitude towards the sale. This neutral factor can go to any of the other two factors. For the retailers, it is vital to capture these 40% neutral consumers and turn this turn it into a positive attitude. But due to consumer misbehavior, it can also shift towards the negative side. Thus, the Khaadi retailers need to pay attention to highlighted factor in their upcoming sale event.

The sentiment analysis of the tweets mentioning Sana Safinaz showed a positive attitude of 22% and a negative attitude of 19% people. This score indicates a strong negative influence that would have been created due to consumer misbehavior along with other present factors.
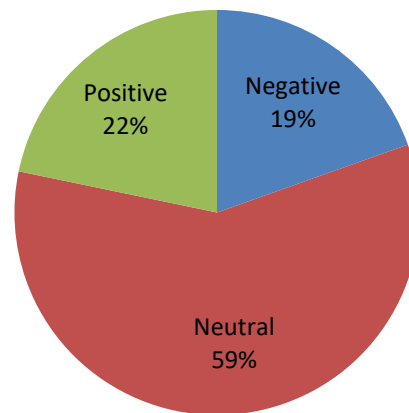


Figure 3. Sentiment Analysis of Sana Safinaz's Tweets

The tweets range for Sana Safinaz was less than the tweets range of Khaadi, but the neutral consumers were more for Sana Safinaz. This analysis provides a better opportunity for Sana Safinaz to reduce the negative factors and increase consumers' positive attitudes.

The sentiment analysis of the Alkaram tweets showed the positive attitude of 32% of consumers while the negative attitude is 11%. This analysis shows the more positive attitude of the consumer towards Alkaram's sale than the negative attitude. Thus, it can be inferred that Alkaram is better at managing misbehaving consumers than managing other negative factors.
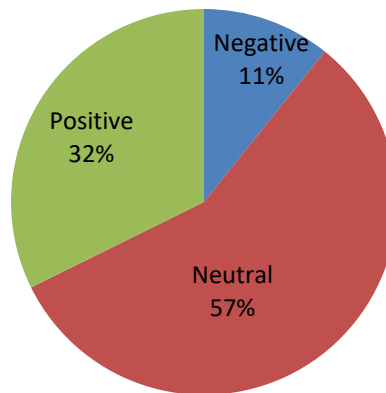
Figure 4. Sentiment Analysis of Alkaram's Tweets

Based on the negative tweets about the apparel brands, five themes emerged as the anticipated stimulators of consumer misbehavior. The tweets were written in Urdu and English both languages were extracted as Urdu is the national and English is the official language of Pakistan (Jakhar, 2018). The tweets in the Urdu language were translated for data interpretation. The translated and original tweets were used to do the analysis. The grammatical and language mistakes were not corrected in the tweets to keep these as original as they can be.

The first theme that emerged is the superabundance factor.

*Translated tweet: I went to Khaadi today, and it was so crowded, it was difficult to breath*

In this tweet mentioned above, the tweeter felt uneasy because of the huge crowd presented at the store. The feeling of overabundant is clear as the person had a hard time breathing. In the literature on consumer misbehavior, the perceived crowd has been a significant stimulating factor of consumer misbehavior (Lennon, Lee, Kim, & Johnson, 2014). According to Rose & Neidermeyer (1999), the physical environment plays a key role in influencing aggressive behavior with emotions such as odor, temperature, and crowding. Thus, the tweeters who felt uneasy because of the crowd are likely to misbehave as a response.

This perceived unease can be a stimulating factor causing consumers to misbehave in the discounted environment. This can be inferred from the following tweet as well:

*Translated tweet: Moral of story is if there is a sale then don't go to khaadi*

In this tweet, the tweeter is cautioning and recommending not going to the stores while there is a sale. According to this person, he/she will not be going to shop when there is a sale going on. This can create a problem for the retailers as they are losing the consumers.

*Translated tweet:  Thanks to Khaadi's sale, the road to my house is blocked, and it torments me to get out of the house. Also, I have a headache that won't go away no matter how many Panadols I take. Life can't get any better, Alhamdulillah*

In the above tweet, the tweeter has described the pain of being unable to get out of the house due to the excessive crowd of consumers. Thus, it can also be seen as a potential factor to stimulate misbehavior.

The next theme relates to the inner environment of the store. It relates to the tweeters complaining about the checkout counters.

*Original tweet:    #Khaadi = The shop was filled, 2 hours just to get the billing done. Anything for pakistani lawn n some nice kurtis*

*Original tweet:    #Khaadi @_Khaadi Next supersale pls do something about the counters, we need more billing counters.*

The above-mentioned tweets show the problem of fewer checkout counters in the stores. The inline waiting and aggression can trigger the consumers to misbehave. McColl-Kennedy, Patterson, Smith, and Brady (2009) defined consumer rage as a type of anger that consisted of a range of negative emotions ranging from fury, ferocity, wrath, contempt, disgust, resentment, and scorn. Whenever consumers feel any of these rage-related emotions, they tend to show it through verbal, nonverbal, physical, constructive expression, or displaced expressions. In the first tweet, the tweeter talked about waiting 2 hours in a queue. This long wait can most certainly trigger the consumers to behave inappropriately, as, in the previous tweets, one tweeter talked about being unable to breathe. Thus, the long queues in front of the checkout counters and shortage of the checkout counters can be the factors to generate misbehavior among consumers.

The third theme of the study talks about the online shopping problems that can cause big issues.

*Original Retweet:  RT @Schizzzuka: Placed an order at @_Khaadi through debit card amount has been deducted twicely but they aint submitted my order yet …*

In the above-stated retweet, the issue is online shopping and payment related. This aspect is related to delayed delivery from the store's side. This also caused the tweeter to pay twice the amount for the same item of cloth. Such behaviors can be seen in the light of a service failure from the tweeter's point of view. Lin, Li, and Shih-Yang (2018) used the justice-affect-behavior model to determine the stimulus of Tabaco website consumers' dysfunctional behavior. They found negative emotions and service dissatisfaction to be the motivators of the dysfunctional behavior. This can easily trigger the consumer to misbehave for being double charged and not getting the purchased item. Thus, the gap between payment and delivery can be a potential factor for the consumer to be motivated to misbehave. Even loyal consumers can behave inappropriately because of a service failure and poor service recovery (Grégoire & Fisher, 2008).

The emergence of this theme happened because of the criticism on the gap between clothes prices and labor wages by the tweeters. These tweets also suggest the negation of corporate social responsibility.

*Original tweet: A trip to Khaadi always nauseates tf out of me. I'm forever mentally calculating the amount they pay per dress to their labor. Oh, this costs 3200? Pretty sure that's only 200 which is going in the worker's pocket. ??*

So, the above tweeter seems pretty upset with the brand because of the higher prices. The usage of the word nauseating shows the intensity of the tweeter's annoyance. Bechwati and Morrin (2003) introduced the concept of desire for consumer vengeance as an extension to the aggressive consumers who goes from loving a firm to hating that firm with the feeling of vengeance and getting even at all cost. The desire to get even with the firm gets stronger for the interpersonal factors than the tangible and physical factors after experiencing the dissonance in the form of service failure. The tweet also highlights the labor wage issue. This tweeter seems to have a soft corner for the labor as they are underpaid. Thus, the underpaid labor issue and the negation of the CSR can motivate the consumers to misbehave because of vengeance.

*Original tweet: Khaadi is running business with profit of 300 million with zero debt equity. Just think how much profit this brand is earning. But they cannot set there prices low for consumers #BoycottEidCollection*

The above tweet also has the problem with the store's higher prices and not accommodating the consumers. Consumers often go on social media networks and start petitioning. These boycott petitions represent an online deviance consumer behavior (Braunsberger & Buckler, 2011). Thus, the hashtag Boycott Eid Collection shows the rebel nature of the tweeter, which can ultimately instigate the consumers to misbehave.

The last theme was developed based on consumer complaints concerning the privacy rights of the consumers.

*Original tweet: One thing though - @_Khaadi - Not Cool. Not cool at All.  The staff recorded a video of the women just outside their store. A few ducked to avoid being in the line of sight. Legally allowed? Was it okay to record without consent / informing them? #TheKhaadiSaleGames*

The above tweet shows privacy-related issues from the store's side. Making a video without the consent of the consumers is a violation of their rights. This could lead to the feeling of betrayal from the retailer's side. Grégoire and Fisher (2008) found that betrayal is the main stimulating factor that leads the consumers to retaliate against the organizations and forget all the justices and fairness. They also concluded that the relationship, strength, and quality of the consumer-employee relation significantly impact the betrayal the consumers experienced. This can most certainly make them furious and behave aggressively. The retail sector has been seen focusing on making the consumer in-store experience emotionally engaging.

In contrast, a negative experience reduces the consumers' satisfaction and makes them behave in a bad manner (Bäckström & Johansson, 2006). Thus, the privacy violation can be a factor stimulating consumer misbehavior. The factors impacting consumer misbehavior are listed in table 4.

Table 4 Triggering Sentiments of Consumer Misbehavior

| No. | Factors |
|-----|---------|
| 1 | Superabundant |
| 2 | Shortage of Checkout Counters |
| 3 | Payment and Delivery |
| 4 | Violation of Corporate Social Responsibility |
| 5 | Privacy Violation |

## 5. Discussion

The research goal was to know about the sentiments that prompt the misbehavior of the apparel industry consumers via their tweets. While the existing mainstream research on consumer misbehavior focuses on the service, hospitality, and supermarket context, this research identifies the features of consumer misbehavior from the apparel industry through machine learning. For this purpose, five themes were developed on the basis of the tweets.

The first theme talks about the superabundance of the consumers gather to do shopping. In the existing literature, retail crowding is expected to increase satisfaction, enhance an experience (Pons, Laroche, & Mourali, 2006), and produce positive emotions (Li, Kim, & Lee, 2009). But the findings of current research show the feeling of irritation that such big crowds create among the consumers causing them to misbehave eventually.

The second theme is about the shortage of the checkout counter presented in the shopping environment. Consumers are expected to misbehave differently based on the layout design, perceived employee service, crowding, and exterior environment (Daunt & Harris 2014). The findings highlight the significance of the need for more checkout counters. When a sale event with a superabundant crowd, it is necessary to have more checkout counters for the ease of shopping.

The third theme mentions how the gap between the payment of an online clothing item and its delivery can cause the consumers to snap and misbehave. The findings show the inability to keep up with the delivery can cause problems and lead the consumers to misbehave.

The fourth theme is related to the personality, beliefs, and values a consumer holds as an individual. The more moral a consumer is as a self-concept individual, the more he/she is to differentiate right from wrong (Dootson et al., 2016). The findings highlight that it is important how consumers perceive the retailers are treating their employees.

The fifth theme highlights the problem of how privacy concerns can cause consumers to misbehave. Consumers have been found to trust the retailers who they perceive value their privacy. The perceived privacy respect from the retailers leads the consumers to be loyal (Lauer & Deng, 2007). The findings highlight the retailers' inability to maintain the privacy of the consumers, thus the results in consumer misbehavior. To the researchers' best knowledge, this is the first research on consumer misbehavior that took the sentiment analysis technique to explore the stimulating factors of the consumers.

The gap from Pakistani consumers' perspective was also filled as Moschis and Cox (1989) suggested the consumer misbehavior differ on the basis of culture, time, and environment.

## 5.1. Theoretical Implications

From a theoretical perspective, current research fills the gap from the sentiments' perspective of the consumers for the exhibition of their misbehavior. The emergence of five themes increases the understanding of consumer misbehavior in a discounted environment of the apparel industry. This research adds to the literature of disposition attribution theory from the perspective of consumer behavior. The concluded themes explain how consumers make judgments about the situation to experience discounted shopping. The consumers were found to be engaged in aggressive behavior due to not being able to achieve the desired results.

Jackson (2019) believed that the consumer or observer will evaluate the fellow consumer's standing on only a few dimensions as the occurrence of a consumer misbehavior event because of cognitive and time limitations. In the case of current research, the consumers were found to draw inference about the misbehaving consumers while considering factors such as the staff, insufficient checkout counters, and so on. These factors were found to play the part of making the disposition attributes in the consumers' minds that triggered them to make judgments and show it in the form of tweets. The current research explored how the consumers in a discounted environment made judgments about an event and the corresponding behaviors that ended with sentiment evaluation. This is the first research on consumer misbehavior that took the sentiment analysis technique to the researchers' best knowledge.

## 5.2. Practical Implications

Consumer misbehavior has some severe consequences: Social and financial. The efforts to control such behaviors hold significance for both the consumers and practitioners equally (Fullerton & Punj, 1997).

The first theme of superabundant encourages the retailers to have more systematic ways to handle the huge crowd's hastiness. The second theme suggests the retailers have more checkout counters in their store to have a pleasant shopping experience. The third theme shows the existing gap between the payment and the delivery process. These outcomes cause consumers to have a negative experience online, which eventually discourages online shopping, causing companies to lose profit and revenue. This recommends the retailers to improve their online payment and delivery system through introducing a better distribution channel. Four out of five factors are related to the retailer's activities/actions, and they can control all these factors. Rummelhagen and Benkenstein (2017), in their study, found that observing consumers feel stronger and negative emotions when they perceive and see fellow consumers misbehaving rather than the employees. However, responsible employees who can produce higher recovery opportunities can observe consumer consummation satisfaction to a certain level (Rummelhagen & Benkenstein, 2017). Keeffe et al. (2008) found that if sophisticated service recovery strategies are used in response to a service failure, it can reduce consumers' anger and retaliation towards the store. Thus employees play a significant

role in solving the problems consumers face and can lead to reducing consumer misbehavior.

## 5.3. Limitations and Future Research Avenues

The research has its limitation, just like any other study. Future research can do a comparative analysis to know the difference in men's and women's behaviors because of their personality trait differences. Pakistan's consumers tend to behave differently based on their gender (Gilal N. G., Zhang, Gilal, & Gilal, 2020). The research was conducted on the tweets during the Mother's Day sale. For future research tweets from other sale events such as the Black Friday sale (Lennon, Lee, Kim, & Johnson, 2014), data analysis purposes can be extracted. The researchers can select other brands than the one under study. Pakistan's consumers have been found to purchase luxury brands depending on their intrinsic and extrinsic religiosity (Gilal, et al., 2020); future research can analyze the region aspect of the tweets in purchasing brands. Lastly, sentiment analysis on an industry apart from the apparel industry can be done. A more sophisticated tool for sentiment analysis such as R, RapidMiner, or Python can be used for future analysis. In the demographics section, future research can be done on a generational basis, such as generation x, generation y, and generation z, as all these generations have shown different emotions and behaviors as the response to the same presented stimuli (Gilal, et al., 2020).

## AUTHOR CONTRIBUTION

Nainan Nawaz: Conceptualization, Methodology, Software, Data collection and Analysis, Writing Original draft preparation.
Sadaf Kashif: Supervision, Validation, Reviewing and Editing.

## DATA AVAILABILTY STATEMENT

All data generated or analyzed during this study are included in this published article.

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No conflict of interest

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## REFERENCES

Amarnani, R. K., Bordia, P., & Restubog, S. L. (2018). Beyond tit-for-tat: Theorizing divergent employee reactions to customer mistreatment. Group & Organization Management , 1–31.

Amelia, A., & Ronald, R. (2017). Can Customer Misbehavior Be Controlled? Case study on retail industry consumer behavior in Indonesia. Review of Integrative Business and Economics Research, 6(1), 249-263.

Bäckström, K., & Johansson, U. (2006). Creating and consuming experiences in retail store environments: Comparing retailer and consumer perspectives. Journal of Retailing and Consumer Services, 13(6 ), 417-430.

Bechwati, N. N., & Morrin, M. (2003). Outraged consumers: Getting even at the expense of getting a good deal. Journal of Consumer Psychology, 13(4), 440-453.

Blau, R. (2015, 11 26). Black Friday brings pain for family of Walmart worker killed. Retrieved 1 4, 2016, from New York Daily News: http://www.nydailynews.com/new-york/black-friday-brings-pain-family-walmart-worker-killed-article-1.2447949

Booa, H. C., Mattilab, A. S., & Tana, C. Y. (2013). Effectiveness of recovery actions on deviant customer behavior: The moderating role of gender. International Journal of Hospitality Management, 35, 180–192.

Braunsberger, K., & Buckler, B. (2011). What motivates consumers to participate in boycotts: Lessons from the ongoing Canadian seafood boycott. Journal of Business Research, 64, 96–102.

Brown, B., Chui, M., & Manyika, J. (2011). Are you ready for the era of 'big data'? Mckinsey Global Institute, 1-12.

Burke, M., & Agencies, a. (2014, 11 28). Black Friday: Carnage in UK Tesco supermarkets as shoppers fight to get bargains. Retrieved 1 3, 2016, from Telegraph: http://www.telegraph.co.uk/finance/businessclub/business-club-video/consumer-and-retail-sector-vide/11259723/Black-Friday-Carnage-in-UK-Tesco-supermarkets-as-shoppers-fight-t

Chen, C.-T., Hu, H.-H. "., & King, B. (2018). Shaping the organizational citizenship behavior or workplace deviance: Key determining factors in the hospitality workforce. Journal of Hospitality and Tourism Management, 35, 1-8.

Choudhary, S. (2014). Study of impulse buying behavior of consumers. International Journal of Advance Research in Computer Sciences and Management Studies, 2(9), 1-4.

Cova, B., Gaglio, G., Weber, J., & Chanial, P. (2018). Organizational sensemaking of non ethical consumer behavior: Case study of a French mutual insurance company. Journal of Business Ethics, 148(4), 783-799.

Creswell, J. W. (2003). Research design qualitative, quantitative, and mixed methods approaches (2nd ed.). United States of America: Sage Publications.

Daunt, K. L., & Greer, D. A. (2015). Unpacking the perceived opportunity to misbehave: The influence of spatio-temporal and social dimensions on consumer misbehavior. European Journal of Marketing, 49(9/10 ), 1505-1526.

Daunt, K. L., & Harris, L. C. (2012). Motives of dysfunctional customer behavior: An empirical study. Journal of Services Marketing, 26 (4), 293-308.

Daunt, K. L., & Harris, L. C. (2014). Linking employee and customer misbehaviour: The moderating role of past misdemeanours. Journal of Marketing Management, 30 (3-4), 221-244.

Davis, J. J., & O'Flaherty, S. (2012). Assessing the accuracy of automated Twitter sentiment coding. Academy of Marketing Studies Journal , 16, 35-50.

DeJoy, D. M. (1994). Managing safety in the workplace: An attribution theory analysis and model. Journal of Safety Research, 25(1), 1-17.

Dodd, C. A., Linaker, A., & Grigg, N. P. (2005). He's gotta have it: Shopping dependence and the homosexual male clothing consumer. Journal of Consumer Behaviour, 4(5), 374–389.

Dootson, P., Johnston, K. A., Beatson, A., & Lings, I. (2016). Where do consumers draw the line? Factors informing perceptions and justifications of deviant consumer behaviour. Journal of Marketing Management, 32(7-8 ), 750-776.

Drennan, Penny, Keeffe, A., D., Russell-Bennett, Rebekah, . . . Judy. (2007). Designing a game to model consumer misbehavior. Digital Games Research Association (DIGRA) International Conference, 24-28.

Dubuis, A., & Bucktin, C. (2015, 11 27). Black Friday 2015: Brutal fights break out in American malls as shoppers clash over best deals. Retrieved 2 2, 2016, from Mirror: http://www.mirror.co.uk/news/world-news/black-friday-2015-brutal-fights-6909924

Everton, W. J., Jolton, J. A., & Mastrangelo, P. M. (2007). Be nice and fair or else: Understanding reasons for employees' deviant behaviors. Journal of Management Development,, 26 (2), 117-131.

Fong, L. H., So, A. S., & Law, R. (2017). Exploring jaycustomer behavior and handling approach in casinos. International Journal of Contemporary Hospitality Management, 29(5), 1403-1425.

Fullerton, R. A., & Punj, G. (1997). What is consumer misbehavior? Advances in Consumer Research, 24, 336-339.

Fullerton, R., & Punj, G. (2004). Repercussions of promoting an ideology of consumption: Consumer misbehavior . Journal of Business Research, 1239– 1249.

Gatzweiler, A., Blazevic, V., & Piller, F. T. (2017). Dark side or bright light: Destructive and constructive deviant content in consumer ideation contests. Journal of Product Innovation Management, 34(6), 772-789.

Ghazi, S. H. (2015, 11 30). Women, power, privilege and Black Friday videos in Pakistan . Retrieved 01 07, 2018, from The Express Tribune : http://blogs.tribune.com.pk/story/30579/women-power-privilege-and-black-friday-videos-in-pakistan/

Gilal, F. G., Gadhi, A. K., Gilal, R. G., Gilal, N. G., Zhang, N., & Gong, Z. (2020). Towards an integrated model of customer religiosity: A self-determination theory perspective. Central European Management Journal , 28(2), 16–37.

Gilal, F. G., Gilal, N. G., Tariq, B., Gilal, R. G., Gilal, R. G., Gong, Z., & Channa, N. A. (2020). Intergenerational differences in fans' motivation to watch the T20 world cup: A generation cohort theory perspective International. Journal of Sports Marketing and Sponsorship .

Gilal, F. G., Zhang, J., Gilal, R. G., & Gilal, N. G. (2020). Linking motivational regulation to brand passion in a moderated model of customer gender and age: An organismic integration theory perspective. Review of Managerial Science, 14(1), 87-113.

Gilal, N. G., Zhang, J., Gilal, F. G., & Gilal, R. G. (2020). Bygone days and memories: The effects of nostalgic ads on consumer brand resurrection movements. Journal of Brand Management, 27(2), 160-180.

Greer, D. A. (2015). Defective co-creation. European Journal of Marketing, 49(1/2), 238-261.

Grégoire, Y., & Fisher, R. J. (2008). Customer betrayal and retaliation: When your best customers become your worst enemies. Journal of the Academy of Marketing Science, 36(2), 247-261.

Harris, L. C. (2010). Fraudulent consumer returns: Exploiting retailers' return policies. European Journal of Marketing,  44 (6), 730-747.

Harris, L. C., & Daunt, K. (2013). Managing customer misbehavior: Challenges and strategies. Journal of Services Marketing, 27(4), 281–293.

Harris, L. C., & Daunt, K. L. (2011). Deviant customer behaviour: A study of techniques of neutralisation. Journal of Marketing Management, 27(7-8), 834-853.

Harris, L. C., & Dumas, A. (2009). Online consumer misbehaviour: An application of neutralization theory. Marketing Theory, 9(4), 379–402.

Harris, L. C., & Reynolds, K. L. (2004). Jaycustomer behavior: An exploration of types and motives in the hospitality industry. Journal of Services Marketing, 18 (5), 339-357.

Hea, W., Zha, S., & Li, L. (2013). Social media competitive analysis and text mining: A case study in the pizza industry. International Journal of Information Management, 33 , 464–472.

Jackson, M. (2019). Utilizing attribution theory to develop new insights into tourism experiences. Journal of Hospitality and Tourism Management, 38 , 176–183.

Jakhar, P. (2018, 02 28). Reality Check: Is Chinese an official language in Pakistan? Retrieved 05 22, 2018, from BBC News: http://www.bbc.com/news/world-asia-43158523

Keeffe, D. A., Russell-Bennett, R., & Tombs, A. (2008). Customer retaliation at the employee-customer interface. Journal of Management and Organization, 14 (4), 438-450.

Lauer, T. W., & Deng, X. (2007). Building online trust through privacy practices International. Journal of Information Security, 6, 323–331.

Lennon, S. J., Kim, M., Lee, J., & Johnson, K. K. (2017). Effects of emotions, sex, self-control, and public self-consciousness on Black Friday misbehavior. Journal of Global Fashion Marketing, 8(3), 1-17.

Lennon, S. J., Lee, J., Kim, M., & Johnson, K. K. (2014). Antecedents of consumer isbehaviour on Black Friday: A social responsibility view. Fashion, Style & Popular Culture, 1(2), 193-212.

Li, J.-G. T., Kim, J.-O., & Lee, S. Y. (2009). An empirical examination of perceived retail crowding, emotions, and retail outcomes. The Service Industries Journal, 29(5), 635–652.

Maguire, R. (2018, 08 01). What is MonkeyLearn? Retrieved 08 09, 2018, from http://help.monkeylearn.com/frequently-asked-questions/what-is-monkeylearn

Mäntylä, M. V., Graziotin, D., & Kuutila, M. (2018). The evolution of sentiment analysis—A review of research topics, venues, and top cited papers. Computer Science Review, 27, 16-32.

McColl-Kennedy, J. R., Patterson, P. G., Smith, A. K., & Brady, M. K. (2009). Customer rage episodes: Emotions, expressions and behaviors. Journal of Retailing, 85 (2 ), 222–237.

Moschis, G. P., & Cox, D. (1989). Deviant consumer behavior. Advances in Consumer Research, 16, 732-737.

Nawaz, N., & Khan, O. (2020). Black Friday and Consumer Misbehavior: A Qualitative Analysis of Pakistan's Black Friday Sale. Journal of Management Info, 7(3), 179-191.

Pons, F., Laroche, M., & Mourali, M. (2006). Consumer reactions to crowded retail settings: Cross-cultural differences between North America and the Middle East. Psychology & Marketing, 23(7), 555–572.

Rambocas, M., & Gama, J. (2013 ). Marketing research: The role of sentiment analysis. Universidade do Porto, Faculdade de Economia do Porto, No. 489.

Rambocas, M., & Pacheco, B. G. (2018). Online sentiment analysis in marketing research: A review. Journal of Research in Interactive Marketing.

Reynolds, K. L., & Harris, L. C. (2006). Deviant customer behavior: An exploration of frontline employee tactics. Journal of Marketing Theory and Practice, 14(2), 95-111.

Reynolds, K. L., & Harris, L. C. (2009). Dysfunctional customer behavior severity: An empirical examination. Journal of Retailing, 85 (3), 321–335.

Rose, R. L., & Neidermeyer, M. (1999). From rudeness to road rage: The antecedents and consequences of consumer aggression. Advances in Consumer Research, 26, 12-17.

Sci-tech. (2017, 02 15). Over 44 million social media accounts in Pakistan. Retrieved 05 01, 2018, from Geo TV: https://www.geo.tv/latest/131187-Over-44-million-social-media-accounts-in-Pakistan

Survey. (2014). Pakistan Economic Survey. Finance Division. Retrieved Octobor 19, 2014, from Government of Pakistan finance ministry: http://www.finance.gov.pk/fb_2013_14.html

Survey. (2017). Pakistan Economic Survey. Finance Division.

Survey. (2019). Pakistan Economic Survey. Finance Division .

Taylor, E. (2018). COPS and robbers: Customer operated payment systems, self-service checkout and the impact on retail crime. Retail Crime, 99-119.

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. Psychological Review, 92(4), 548-573.

Zolfagharian, M., & Yazdanparast, A. (2017). The dark side of consumer life in the age of virtual and mobile technology. Journal of Marketing Management, 1-32.

# The Impact of External and Internal Negative Feeling on Consumers' Desire for Revenge and Negative Word of Mouth

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## Abstract

Service failure is a common problem that creates feelings of displeasure and dislike among consumers towards the service. Such feelings trigger negative word of mouth (NWOM) and desire to take revenge due to the anger and regret they feel caused by the service failure. However, seldom any research is done on these emotional aspects of service failure in Pakistan related to consumers' motivation. This study therefore has examined the effects of negative emotions on the consumer's desire for revenge and spreading of negative word of mouth by consumer who have had a bad experience using the delivery service of foodpanda. The sample size comprised of 280 participants. SPSS and SmartPLS softwares were used for analysis. PLS SEM was for hypothesis testing. The results highlighted that anger and regret had a positive and significant effect on NWOM. The study further found that anger and regret had no significant effect on the desire for revenge. Similarly, no such relationship was identified between revenge and NWOM. Likewise, there was no significant relationship between revenge and NWOM.

*Keywords: negative emotions, anger, regret, revenge and negative word of mouth (NWOM), foodpanda, food delivery service.*

**JEL Code**: M30, M31, C12

## 1. Introduction

The service industry is considered as the fastest growing industry in Pakistan. The total share of the service industry in GDP is almost 54%, which is greater than the agricultural sector of Pakistan. With the increased technological advancement this sector aims to flourish and contribute to economic growth. This sector is also the reason for increasing employment and reducing poverty in the country (Ahmed & Ahsan, 2011). Food and restaurant services have also been studied over the years. Past studies focused on the segments of service quality in food service, management of services, marketing of service, etc. (DiPietro, 2017).

The food delivery service market is expanding all over the globe. Restaurant meal is being served to the customers at their doorstep with the revolution of technology.

Nowadays the competition is increased on the basis of services, which has also attracted large investments (McKinsey, 2011). The road and traffic conditions do not have any direct influence on the delivery services (Correa, 2019). Food delivery services are providing various models which include allowing customers to order from multiple restaurants in single order (Steever, Karwan & Murray, 2019). According to Rathore & Chaudhary (2018), the online delivery service has allowed customers to select their favorite food items and order conveniently. The ease provided by these services has developed the positive perception of ordering food online among the consumers.

The consumer usually buys food online only to relieve oneself from making a home-cooked meal. "No need to cook" is the major reason to order food online (Tomacruz & Flor, 2018). According to Das (2018), the factors which influenced customers to use mobile applications for ordering food are convenience, at your door step delivery process, reward systems and refund policies. Elderly people in long term care (LTC) facilities, can be affected by the delivery services (Lengyel, Zello, Berenbaum, Henry, & Whiting, 2003), therefore such systems should work to provide variety, quality and taste in the food by examining the factors such as surroundings, results and change indicators, etc.

Digital media has provided the platform for the companies to develop good relations with the customers, this helps in increasing customer loyalty and handling of queries (Mehta, Iyer, & Yadav, 2019). Consumer perceptions and behaviors have shown that various factors including; liking, satisfaction, preference, need, taste, quality and delivery can be used for achieving competitive advantage for companies like Zomato, Swiggy and Foodpanda, etc. (Chandrasekhar, Gupta, & Nanda, 2019).

Foodpanda has been working in Pakistan since 2013, and has successfully emerged as one of the best online food delivery portals over the years (Tribune, 2014). Foodpanda has arranged extraordinary fun events and food tours, engaging famous bands and social media V-loggers to develop and sustain loyal fan base (Tribune, 2018). According to Dawn.com (2016) foodpanda has converted the traditional system of ordering food to something which provides consumers to pick and choose from different outlets and food providers like they do in a food court, which has helped it to increase its sales revenue. It has also signed partnerships with various famous national and international food chains to grow its business further.

Online food delivery services have faced challenges regarding price, quality and advertisements, these problems can create issues related to customers' trust and online applications' credibility (Ho, 2018). According to Simphiwe, Anne, Trilby, & Elsamari (2012), service failures can result in generating a desire for direct and indirect revenge in the customers. Customer's reactions towards service failures can have positive and negative impact. Firms can overcome such behaviors by offering compensation or expressing regret (Joireman, Grégoire, Devezer, & Tripp, 2013). According to Bougie, Pieters, & Zeelenberg (2003), various emotions such as anger can create impact on customers' behavior when facing service failures. The relationship status between the

customer and company depicts the retaliation level that can arise after service failures (Grégoire & Fisher, 2006).

The gap in the existing literature regarding customer's behavior towards service failures in Pakistan has opened new horizons to study how negative emotions can affect consumers' desire for revenge and negative word of mouth after experiencing bad services from companies such as foodpanda. Therefore, current study will help in identifying consumer reactions resulting from encountering bad foodpanda service and up to what extent such behaviors can cause damage to foodpanda. With the help of this study foodpanda can develop strategies to cater to the customers who have suffered a bad service, eliminate bad feelings and retain those customers. This way foodpanda can further develop strong loyal customer base. Not only foodpanda but other online service industries can also identify the harm which can be caused by dissatisfied customers through this research and work on it.

Service failure is termed as any incident related to the services, either genuine or seen, amid a customer's encounter with a company (Palmer, Beggs, &Keown-McMullan, 2000). Service failure is a common problem that creates feelings of dislike and displeasure among consumers. Such feelings trigger a negative word of mouth and a feeling of revenge due to anger and regret. Hence, Foodpanda being one of the leading food delivery services in Pakistan is often a victim of a service failure which leads to such unfavorable outcomes. A lot of research has been done in the past regarding food delivery service failures. Mueller, Palmer, Mack, & McMullan (2003) found that 86% of the service failures were because of the service delivery system i.e. highly slow service, long wait, staff blunders, and cooking blunders. However, the element of revenge, negative WOM, regret, and anger are yet to be explored, especially in Pakistani context. Therefore, this research aims at exploring the role, revenge, negative WOM, regret and anger play in opting for food delivery service in the context of Foodpanda.

On the basis of the problem statement the research objectives for this research include; to identify whether consumers face any issues while availing the service from foodpanda, to identify whether consumers actually have desires for revenge and negative WOM after any bad experience, to identify the effect of anger on revenge, to identify the effect of anger on NWOM, to identify the impact of regret on revenge and lastly to evaluate the impact of regret on NWOM.

## 2. Theoretical Underpinning and Hypotheses Development
Anger affects revenge feelings intensely and positively. There are more chances of an aggressive person to take revenge (Ortiz et al., 2017). Yeh (2015), describes that emotional dissonance, which is conflict between feeling and feigning, builds a relation between revenge concept and customer verbal aggression. Funches (2011), recognized three causes of buyer outrage which are broken guarantees, out of line treatment and threatening vibe. He moreover, clarified in detail that buyer anger impacts past choices, repurchase behavior or shows switching behavior among consumers. Additionally, customer response to a position is mostly positive when firm ideological convictions

are competing and buyers stay on one belief system in assertion with the manager's position, driving to less anger and way better brand states of mind (Leak, Woodham, & McNeil, 2015).

Regret usually occurs when people feel that the results they have achieved would have been different if they had made better choices in the past (Zeelenberg & Pieters, 2007). Regret acts as a force to influence customers' future actions. This may result in changing customers' post-purchase behavior, word of mouth and inertia (M'Barek & Gharbi, 2012). In the case of online shopping, many factors can influence customers' regret and dissatisfaction such as poor service quality or bad information quality (Liao et al., 2011; Azemi, Ozuem, & Howell, 2020). Any service failure will make customers disappointed, and such types of customers than regret shopping which ultimately leads to switching (Zeelenberg & Pieters, 1999). Customers who had had any bad experience while availing any service will consider other alternatives next time. This behavior is due to the influence of regret, which allows them to silently prefer other brands instead of complaining or creating any negative word of mouth (Gilal et al., 2018; Zeelenberg & Pieters, 2004). Feelings of disappointment and regret can also reduce consumers' satisfaction (Bui, Krishen, & Bates, 2011; Azemi, Ozuem, & Howell, 2020).

Word of mouth (WOM) is known as a strong driver in shaping of the attitudes of consumers. Herr et al. (1991), while Hennig et al. (2004) defined electronic word of mouth as any negative or positive statement made on the internet by former, actual or potential customers regarding a product or company. Moreover, Litvin, Goldsmith, & Pan (2008) defined electronic word of mouth as an informal form of communication created by the consumers for the consumers regarding the use and features of a product or service and its sellers. Furthermore, negative WOM have a greater impact on consumer's mindset about a product than positive WOM (Pihlaja, Saarijärvi, Spence, & Yrjölä, 2017). Brand loyal customers are more likely to be influenced and committed to positive WOM since it makes them feel comfortable with their brand choice. Similarly, loyal customers are less likely to notice negative WOM about their choice of brand as it moves opposite with their attitudes and beliefs and makes them mentally unstable (Gilal et al. 2018; Laczniak, DeCarlo, & Ramaswami, 2001).

A dissatisfied customer is more likely to spread negative WOM amongst family and friends about the product or service that caused displeased (Azemi et al., 2020; Godes & Mayzlin, 2004). When a customer faces unfavorable incident related to a product or service, they are likelier to complain on social media platforms and blogging sites and hence their negative WOM becomes a threat to the apparent company (Stockman, Van Hoye, & da Motta Veiga, 2020; Azemi et al., 2020; Svari & Erling Olsen, 2012).

Aquino, Tripp, & Bies (2006), characterized vindication in work environment as an exertion embraced by the casualty of hurt to cause harm, damage, distress or discipline the other party for causing the problem. Bechwati & Morrin (2003), extended the definition of revenge desire in terms of consumer perspective as the retaliatory sentiments that customers have for any organization, such as the crave to cause harm to

the firm, more often after a negative bad experience. Bedi & Schat (2017), suggested if you blame a customer it will automatically lead him to take revenge. However, if the employees empathized, the desire for revenge is minimized. On the other hand, Walsh et al. (2019) explored the positive relation between anger and revenge. They examined that consumers with higher corporate understanding and resistance levels show poorer retaliation motives than those with poor corporate understanding and lower resistance rates.

## 2.1. Self Determination Theory

Theory of self-determination (SDT) support this research. SDT was defined by Deci & Ryan (1987) as a choices consumers make on the basis of self-motivation without the influence of psychological needs and external factors. However, Gilal et al. (2019) defined it as consumer motivation through which consumer tend to develop contingencies for their purchases and behavior. To explain the SDT in simpler words it can be said that consumers make choices either to fulfil their intrinsic or extrinsic motivation. Therefore, on the basis of SD's theoretical perspective, in this research consumer's consumer wanting to take revenge is linked with consumer's willingness to spread negative word of mouth.

Moreover, organismic integration theory (OIT), a part of SDT is the only theory as per Gilal et al. (2018) & Gilal et al. (2020a) which has categorized and explained consumer's extrinsic motives into sub types which account for the different reasons for a specific behavior consumer engages in. e.g. in this research this theory will explain consumer's willingness to spread negative word of mouth (i.e. intrinsic regulation) because they feel wronged by the organization, in this case foodpanda (i.e. identified regulation), the consumer wants to overcome the guilt he/she feels because he/she opted for foodpanda in the first place (introjected regulation) because the consumer wants to maintain his/her status (smart buyer) in the eyes of others (external regulation).

## 2.2. Hypothesis Development
Anger is a prison that initiates negative emotions such as the desire for revenge or feelings to harm, these reactions can affect one's ease and comfort (Burdon, 2018). Anger is often seen as the trigger for seeking revenge (Aquino, Tripp, & Bies 2006) by customers. Grégoire, Tripp, & Legoux (2009) explained that revenge has its roots in consumer's anger. Furthermore, the revenge behavior is heightened by consumer's negative emotions they feel arising from their anger (Koo & Ju, 2010; Grégoire et al., 2009). Breitsohl & Garrod (2016) emphasized that among the negative emotions that a consumer feels including anger, disgust and disregard, anger is the emotion that leads to certain behavioral intentions and action in consumers. Therefore, it is hypothesized that:

$H_1$: There is a statistically significant and positive effect of Consumer anger on the desire for revenge.

Researchers suggest that anger results in wanting revenge because this act provides a sense of protection and satisfaction among the consumers (Hall, 2013). Grégoire et al. (2009), states that wanting revenge is the consequence of one's anger. Revenge is more self-focused than anger because it allows a person to harm others to get self-restoration (Elshout et al., 2015). Another study, indicates that anger and regret in consumers result in retaliatory behaviors (Bonifield & Cole, 2007; Wen-Hai, Yuan, Liu, & Fang, 2019). Consumers who had to face service failure engaged in spreading more negative word of mouth as a means of revenge due to their heightened sense of regret (Kim, 2016). In the view of above studies following hypothesis have been derived:

$H_2$: There is a statistically significant and positive effect of Consumer regret on the desire for revenge.

After any service failure, both anger and regret have a significant effect in triggering retaliatory behaviors in the form of NWOM (Bonifield & Cole, 2007). It has also been studied that those consumers' who possess good corporate understanding will show a positive relation between anger and revenge (Walsh et al., 2019). Mostly displeasure and disappointment result in increasing NWOM in the consumers (Godes & Mayzlin, 2004). Unfavorable services experiences and consumptions often lead towards the generation of negative emotions including anger, frustration, sadness, fear and shame, the outcome of these emotions leads the consumer towards spreading of negative word of mouth (Tronvoll, 2011). Consumers prefer to complain in the form of NWOM on social media platforms after facing any service failure to overcome their anger and regret. The feeling of taking revenge will allow them to stop others to buy from the same company (Svari et al., 2012; Wen-Hai et al. 2019). Considering these past researches following hypothesis was derived:

$H_3$: There is a statistically significant and positive effect of Consumer anger on negative WOM

The negative word of mouth is strictly emotion driven (Schoefer & Diamantopoulos, 2008) and that emotion mostly negative in nature including frustration, sadness, fear, anger and regret (Koo & Ju, 2010; Grégoire et al., 2009), further regret triggers engaging in spread of negative word of mouth (Kim, 2016). Consumers who face regret tend to spread more negative word of mouth (Wu & Wang, 2017). Service failure faced by consumers heightens the sense of regret in consumers which triggers them to spread negative word of mouth about the service and the service provider (Kim, 2016). Therefore, it was hypothesized that:

$H_4$: There is a statistically significant and positive effect of Consumer regret on negative WOM

Mistreatment or failure of services create a form of aggression among customers and research shows that customers feeling aggression due to mistreatment and service failure often experience negative thoughts (Dallimore et al., 2007) i.e. wanting to harm

the service provider by spreading negative word of mouth. Wen-Hai et al., (2019) found that desire for revenge is intensely related to a consumer's willingness to spread negative word of mouth. Further anger of consumers leads to desire for revenge which in turn result in different vengeful behaviors, one of which is spreading of negative word of mouth (Grégoire et al., 2009; Wen-Hai et al., 2019). Therefore, it was hypothesized that:

$H_5$: There is a statistically significant and positive effect of Consumer desire for revenge on negative WOM
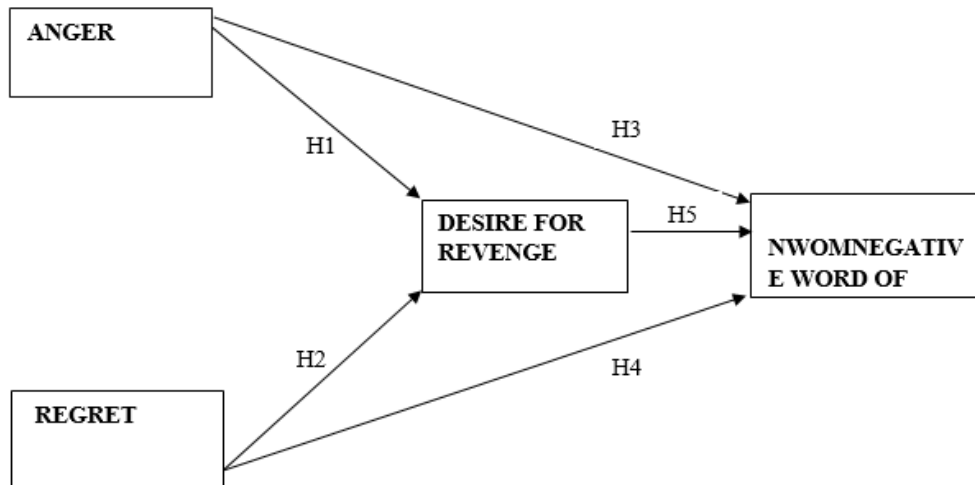


Figure 1 Conceptual framework is adopted from Wen-Hai, Yuan, Liu, & Fang, 2019

## 3. Research Methods

### 3.1. Procedure & Participants

This study was quantitative in nature and was based on the philosophy of positivism (Newman et al., 1998). The sample size of the research was based on 280 participants. The sampling method used was non probability-purposive sampling method because the data gathered was confined to those who had a bad experience with food panda (Skowronek & Duerr, 2009).

There were two independent variables as anger and regret, one dependent variable; negative word of mouth (NWOM) and one mediation variable; consumer desire for revenge. SmartPLS software was used to analyze the relationship between these variables. While SPSS was used to perform EFA.

### 3.2. Measurement

For data collection, a survey (questionnaires) was used. The questionnaire consisted of 4 sections based on 4 variables. Variable anger consisted of 6 items which has been

adopted from (Bonifield & Cole, June 2007; Bougie, Pieters, & Zeelenberg, 2003). Regret consisted of 5 items which have been adopted from (Bonifield & Cole, June 2007). While Negative Word of Mouth and Desire for Revenge each consisted of 5 items adopted from (Grégoire, Tripp, & Legoux, November 2009)

For all the variables, Likert scale had been used to collect the data. Likert scale is a scale used to represent people attitude to something, starting from 1 that you strongly disagree (or dislike) to 5 strongly agree (or like). The questionnaire was made on Google forms and the questionnaire was shared on public platforms like Facebook, WhatsApp and, Instagram to reach a wider audience.

## 4. Data analysis

In this study the demographics, descriptive statistics, reliability, discriminant validity, exploratory factor analysis (EFA) and CB-SEM tests are used. SPSS software version 21 was used for demographics (frequencies), descriptive statistics and EFA. Whereas, reliability, discriminant validity, correlation and CB-SEM were analyzed using SmartPLS software.

### 4.1. Results
#### 4.1.1. *Demographic Profile*
The demographic factors of the participants are shown in Table 1. According to the data, 48.2% of the total participants belong to the range of 21-30 years. Participants belonging to the age bracket of 31-40 years are 16.8% of the total respondents. Only 2.1% of data is comprised of those people who are in the age group of 41-50 years. Whereas the remaining 32.9% belong to the group of less than 21.

The qualification criteria are divided into five categories which include intermediate, Graduation, Masters, M.S/M. Phil and others. A total of 112 participants (40%) belong to intermediate, which represents the major portion of the sample. 110 respondents (39.3%) represent the category of graduation. Overall 13.9% of the sample belongs to Masters Category. Similarly, only 5.7% and 1.1% of the respondents are associated with M.S/M.Phil and others category.

Overall data is comprised of 117 male participants, which makes up 41.8% of the total sample. Whereas 163 participants (58.2%) are female. The monthly income criteria are comprised of four categories, in which 84.3% of the total participants belong to the category of 41,000 and above. Which shows the major portion of the sample. 31,000 – 40,000 category involves only 7.5% of the total respondents, which makes it the second-highest category of the sample. The rest of the data belong to the categories of 21,000 – 30,000 and up to 20,000, which is 6.4% and 1.8% of the total data.

The last criterion of the demographic profile of those participants who had any bad experience while using the service of Foodpanda. According to the data all 280 respondents have faced issues while using Foodpanda.

Table 1: Demographic Profile

|  |  | Frequency | Percent |
|---|---|---|---|
| Age | 21-30 | 135 | 48.2 |
|  | 31-40 | 47 | 16.8 |
|  | 41-50 | 6 | 2.1 |
|  | Less than 21 | 92 | 32.9 |
|  | Total | 280 | 100 |
| Qualification | Graduation | 110 | 39.3 |
|  | MS/M. Phil | 16 | 5.7 |
|  | Masters | 39 | 13.9 |
|  | Other | 3 | 1.1 |
|  | Up to Intermediate | 112 | 40 |
|  | Total | 280 | 100 |
| Gender | Male | 117 | 41.8 |
|  | Female | 163 | 58.2 |
|  | Total | 280 | 100 |
| Monthly Income | 21,000 – 30,000 | 18 | 6.4 |
|  | 31,000 – 40,000 | 21 | 7.5 |
|  | 41,000 & Above | 236 | 84.3 |
|  | Up to – 20,000 | 5 | 1.8 |
|  | Total | 280 | 100 |
| Bad Experience | Yes | 280 | 100 |

### 4.1.2. Descriptive Statistics

According to the descriptive analysis, the variable Regret (Mean = 4.076, S.D = 0.9399, Variance = 0.883) has shown the lowest skewness (-1.431), and variable Revenge (Mean = 2.038, S.D = 1.0573, Variance = 1.118) has shown the highest skewness (0.986). The kurtosis results for three items is positive while only one item has negative kurtosis. Regret (Mean = 4.076, S.D = 0.9399, Variance = 0.883) has the highest value for kurtosis (1.689), whereas NWOM (Mean = 3.836, S, D = 1.1578, Variance = 1.340) has the lowest value for kurtosis (-0.100). All the variables lie in between $\pm$ 2.5, it is concluded that the collected data shows a normal tendency and no outliers have been found, therefore further research can be done (Hair et al., 2014).

### 4.1.3. Reliability Statistics

According to the reliability analysis Revenge has the highest reliability ($\alpha$ = 0.957, CR=0.966 Mean = 2.038, Variance = 0.002). Anger has given the lowest reliability ($\alpha$ = 0.914, CR = 0.933, M = 4.120, Variance = 0.057). The output points that the reliability

of all the constructs are in the acceptable range of greater than 0.7, which represents that the data is reliable (Kimberlin & Winterstein, 2008).

### 4.1.4. Exploratory Factor Analysis (EFA)

Principal factor analysis together with Varimax rotation was used for the respective constructs. Kaiser-Meyer-Olkin (KMO) for all the constructs is greater than the acceptable value of 0.6 (Hair et al., 2014). The Barley Test of sphericity is found to be significant P<0.05. The AVE of all the constructs is higher than the value of 0.70, which is larger than the acceptable value of 0.05, this demonstrates the convergent validity of all the constructs (Hair et al. 2012).

Table 2: Exploratory Factor Analysis (EFA)

| Construct | Original Items | Kaiser-Meyer-Olkin | Bartlett's Test of Sphericity (P<0.05) | Cumulative factor loading % |
|---|---|---|---|---|
| Anger | 6 | .888 | 1120.135 | 70.096 |
| Regret | 5 | .839 | 1329.619 | 81.392 |
| Revenge | 5 | .895 | 1523.196 | 85.226 |
| NWOM | 5 | .891 | 1521.602 | 84.711 |

### 4.1.5. Convergent Validity

Based on the values of composite reliability (≥0.70) and AVE values (≥0.5) for each variable it is safe to say that convergent validity exists in the data used for this research.

Table 3: Convergent Validity

|  | Cronbach's Alpha | rho_A | Composite Reliability | AVE | Mean | Std. Dev. |
|---|---|---|---|---|---|---|
| Anger | 0.914 | 0.924 | 0.933 | 0.701 | 4.120 | 0.8868 |
| NWOM | 0.955 | 0.956 | 0.965 | 0.847 | 3.836 | 1.1578 |
| Regret | 0.943 | 0.943 | 0.956 | 0.814 | 4.076 | 0.9399 |
| Revenge | 0.957 | 0.983 | 0.966 | 0.851 | 2.038 | 1.0573 |

### 4.1.6. Discriminant Validity

The values in Table 4 show the result for each factor of squares of correlation between the variables and the square root of variance. Discriminate validity is used to analyze that each variable has distinctive and unique identity or not (Hair, 2014). According to Henseler et al. (2015), the square root should be higher than the squares of the correlation of each variable.

Table 4: Discriminant Validity

|  | Anger | Regret | Revenge | NWOM |
|---|---|---|---|---|
| Anger | 0.84 |  |  |  |
| Regret | 0.50 | 0.90 |  |  |
| Revenge | 0.03 | 0.02 | 0.92 |  |
| NWOM | 0.56 | 0.58 | 0.02 | 0.92 |

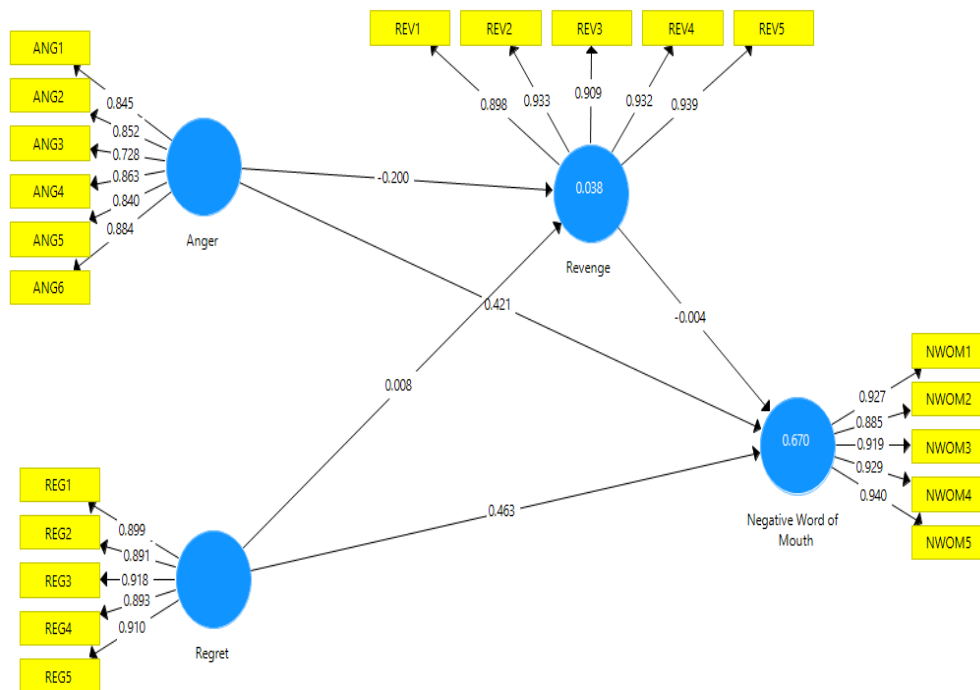## 4.2. Structural Equation Model



Figure 2: Measurement Model

The above measurement model is tested through SmartPLS and outputs are shown in figure 2. The results of the initial output are used to analyze the outer model measurement factors. According to the results shown in figure 2, all the items measured are above the acceptable value of 0.7 (Hair et al., 2014). This shows that there is a significant contribution of all the items to their respective constructs.

To evaluate the model fitness (Henseler, Hubona, & Ray, 2016), examination of the saturated model and Standardized Root Mean Square Residual (SRMR) at a 95% bootstrap quantile is done. This is valid and significant model criterion to analyze PLS

path modeling. The value of SRMR is 0.051, which is far below the threshold of 0.08 (Hu & Bentler, 1999), showing that this model is fit for the study. Path coefficients of the inner model are analyzed to examine the possible linkage between the variables. For this model, the path from anger to NWOM has a strong positive coefficient 0.421 but the path form anger to revenge has the weakest correlation of negative 0.200. Considering the path of regret and NWOM, a strong positive relation of 0.463 is observed whereas in case of regret and revenge a weak relation of 0.008 is given. The path from revenge and NWOM shows a negative correlation of 0.004. These path values are always standardized and vary from -1 to +1. Closest values to 1 indicate strongest paths, and values closest to 0 reflect the weakest path (Garson, 2016). These results also show that anger has a much lower impact on revenge that regret. And in the case of NWOM anger has a slightly lower effect than regret.

In this model, NWOM and revenge are the two endogenous variables, with incoming variables. The value for the R² value for the variable NWOM is 0.670, which indicates that 67% of the variance in NWOM is due to the model. Similarly, the value of R² for revenge is 0.038, which means that only 3.8% of the variance in revenge is due to the combined effect of anger and regret.

To analyze the significance of the PLS coefficients, the resampling method is used through bootstrapping with the traditional PLS estimation algorithm as shown in Figure 3.
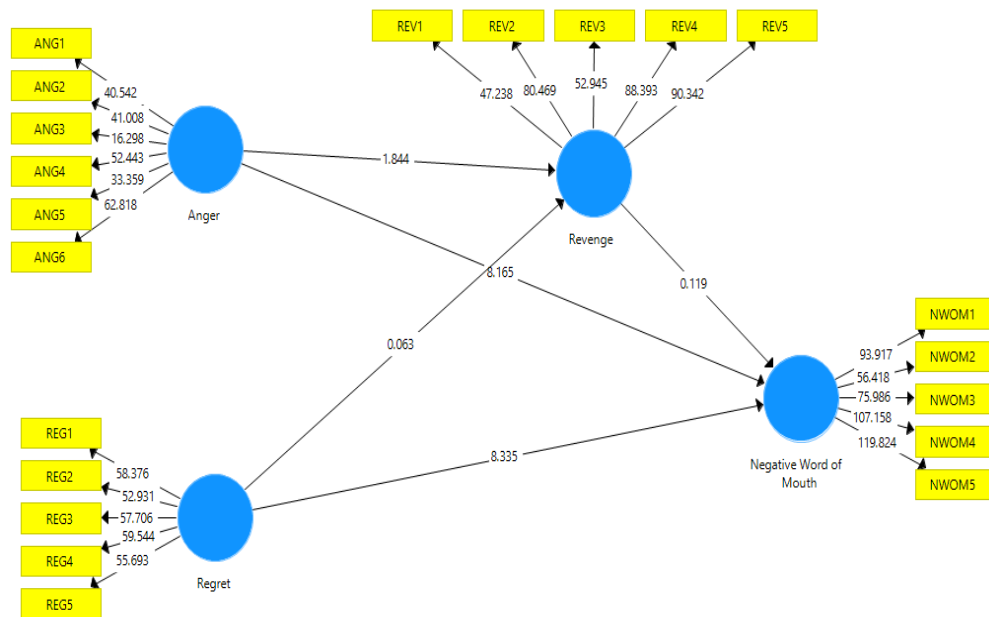


Figure 3: Structural Model

All t-values above the threshold of 1.96 are significant at the 0.05 level (Garson, 2016). According to the output in Table 7, the t value of 1.844 and p-value of 0.066 shows that hypothesis 1 (H₁) is rejected. Similarly, hypothesis 2 (H₂) is also rejected because of the t value of 0.063 and p value of 0.950. Hypothesis 3 (H₃) is accepted because the observed t value is far greater than 1.96 (t = 8.165) and the p-value is at 0.00. The fourth hypothesis of this study H4 is also accepted due to an increased t- value of 8.335 and p-value of 0.00. But again the fifth hypothesis H5 is rejected due to 0.119 t value and 0.905 p-value. Overall two hypotheses (H₃ and H₄) are accepted and three hypotheses (H₁, H₂, and H₅) are rejected.

The analysis of these results shows that if Anger increases then the desire for revenge decreases whereas NWOM is increased at the same time. This can due to the misinterpretation of the revenge variable. The study indicates that regret is also negatively related to the revenge variable but it also possesses a significant impact on NWOM. No significant relation has been seen between the desire for revenge and Negative word of mouth.

Table 5: T-Statistics and P Values

|  | T Statistics | P Values |
| --- | --- | --- |
| Anger -> Negative Word of Mouth | 8.165 | 0.000 |
| Anger -> Revenge | 1.844 | 0.066 |
| Regret -> Negative Word of Mouth | 8.335 | 0.000 |
| Regret -> Revenge | 0.063 | 0.950 |
| Revenge -> Negative Word of Mouth | 0.119 | 0.905 |

## 5. Discussion

This study examined five relationships between the research variables. According to the statistical study, support for the only hypothesis has been found. Below is the discussion is given about the relevance of this study with previously done researches.

The first hypothesis indicates the relationship between consumer anger and their desire for revenge. But this hypothesis was not supported by the results (t < 1.96, p > 0.05). As per this study, consumer anger does not have any significant effect on desire for revenge. Contrary to the results, Tripp & Bies, (2010) suggests that righteous anger has a positive relation with revenge, however, revenge has always been perceived as a response to achieve justice (Sweeney et al., 2020). Doorn (2018), defines anger as to restore any unjust situation whereas revenge means to restore oneself. Another study states that revenge behavior of any consumer can be different because of variations in the cultural background around the globe (Zourrig et al. 2009). If compared to Zourrig et al., (2009), it can be understood that revenge is considered or dealt with differently by people of a different race. Hence it can be assumed that Pakistani society may have perceived revenge as an extremely negative emotion to be used against any service failure, which has resulted in negative results of this study.

The second hypothesis shows the relationship between consumer regret and their desire for revenge. However, this hypothesis was not supported by the results (t < 1.96, p >0.05). Regret does not have any significant effect on the desire for revenge, according to the results of this study. Studies show that once the customer has achieved the emotional level of deception, the customer has a desire for revenge and avoidance, but mostly the customer depends on a desire to avoid it because a desire for revenge entails significant psychological costs (Lee et al., 2013). Good-relationship-quality customers are more likely to ignore the negative behavior than bad-relationship-quality customers, even if they regret the buying decision they are less likely to seek revenge (Grégoire et al., 2009; Sweeney et al., 2020). The desire for revenge is hard to sustain and appears to decline over time. Usually revenge is not the key factor in the eyes of customers to activate grudge or anger. Consumers' desire for conciliation is greater than the desire for revenge. As consumer looks forward to receive an apology or compensation from a brand (Joireman et al., 2013; Voorhees et al., 2017).These studies are relevant to the results of this study that the consumers' regret cannot effect revenge.

The third hypothesis states that the customer anger affects NWOM positively. This hypothesis has been supported by the research outputs (t > 1.96, p < 0.05). Consumers who are angry, frustrated or irritated can spread Negative word of mouth to take revenge on the business (Wetzer, Zeelenberg, & Pieters, 2007). Anger is a catalyst in the relationship between crisis transparency and NWOM (Coombs & Holladay, 2007). Unhappy customers will probably switch the provider because of a service failure, complain and/or cause the spread of NWOM (Sánchez-García & Currás-Pérez, 2011). Consumers who have had a bad experience with an organization are more driven to vent their anger, through WOM soon after the incident than those with positive experiences (Sweeney et al., 2005; Sweeney et al., 2020). With these studies, it has been suggested that anger affects NWOM.

The fourth hypothesis states that consumer regret affects NWOM positively. As per the results, this hypothesis has been accepted (t > 1.96, p < 0.05). If consumer's face regret they are more into spreading negative WOM about their experience. The study done by (Wu & Wang, 2017) presented that those consumers who blame others for their regret tend to spread more NWOM than those who experience self-blame regret. The study conducted by Wen-Hai et al. (2019) on Hunghwa Telecom Company showed a strong and positive relationship between regret and negative WOM. Another study done by (Zeelenberg & Pieters, 2007; Sweeney et al. 2020) explored that disappointed consumers engage themselves in NWOM just to warn others, while consumers who experience regret talk to others to warn them to reinforce social bonds. Consequently, the results of this study are relevant to the literature mentioned above.

With the fifth hypothesis, this study relates consumer desire for revenge and NWOM. However, the results derived from the study have not supported this hypothesis (t < 1.96, p > 0.05). With this study, it resulted that the desire for revenge and negative WOM are not related. The study of (Wen-Hai et al., 2019) showed however, an effective relationship between negative WOM and desire for revenge when they conducted a

study in Huanghwa Telecom Company about their employees' experience. Zeelenberg & Pieters (2007) & Jackson, Choi, & Gelfand, (2019) showed a positive relation, the results reveal that consumers who experience anger engage themselves in negative WOM to take revenge. The above studies support a relationship between the desire for revenge and negative WOM whereas, this study does not support a relation between revenge and negative WOM.

## 6. Implications for Theory
A lot of attention has been paid towards the research of negative word of mouth Wen-Hai et al., 2019; Jackson et al., 2019; Voorhees et al., 2017; Sweeney, 2020), however, this research has explored the Pakistani food delivery market for the phenomenon of spreading negative word of mouth triggered due to consumer's anger, regret and desire to seek out revenge on the party that has mistreated them. Moreover, this research advances by researching the intrinsic and extrinsic motivators for spreading negative word of mouth in the light of self-determination theory (Gilal et al., 2019; Gilal et al., 2020c), in the light of self-determination theory this research suggests that the consumer's intrinsic motivators play a vital role in shaping their desire to seek revenge and spread negative word of mouth about a food delivery service which they consider has mistreated them and harmed them in any way (psychologically, financially, physically).

## 7. Implications for Practice
There can be several implications for the company foodpanda. But according to the results of this study, managers and policymakers must try to develop an effective system for the customers to register their complaints. This may help the company to solve the issues before the customers spread negative word of mouth. It should also be a matter of concern for Foodpanda that what factors are resulting in making customers angry. Therefore, the analysis of such factors (such as late delivery, poor quality or cold food) and solving such issues can help the company in reducing customer's aggression. Moreover, policymakers should focus on regular evaluation (quarterly, half-yearly or yearly) of the restaurants who fail to perform well. Such steps will help the company to get rid of those restaurants who lack skills, standards, and competency.

## 8. Limitations and Future Research Directions
This study has some limitations. First of all, this study considered the negative emotions to identify consumers' desire for revenge and NWOM. However other factors can also play an important role in influencing consumers' decisions. For instance, demographics might play a role in differences in opinions about negative word of mouth, gender differences, males and females may have differing viewpoints (Gilal et al. (2020b), online environmental cues along with the mediating effect of trust and perceived risk can also change consumers' purchase intention (Hsin Chang & Wen Chen, 2008). Similarly, habits can also be effective in altering the behavior of consumers (Limayem et al., 2007). Moreover, moderating effects of gender and age can alos play an important role in shaping consumer's extrinsic motivation. Therefore, further studies on this topic should consider such factors into account.

Secondly, this study is based on a sample of 280 participants, who had any bad experience while using foodpanda. Other companies' users were not involved. Therefore, the results and findings cannot be generalized for the service failure of other companies.

Thirdly the variables chosen for the study such as the desire for revenge were considered as an extreme action against foodpanda in Pakistan. Therefore, the societal understanding of the variables should be identified for the implication of the study.

## 9. Conclusion

In this study, we have examined the effects of external and internal factors i.e. anger and revenge on the consumer's desire for revenge and regret. It has also investigated the mediating relation of desire for revenge. The results analyzed have shown no such importance of the variable revenge. However, a negative word of mouth (NWOM) has played a crucial role in interpreting that consumers' anger and regret have strong and positive relations with NWOM.

The first variable of this study is anger, which is defined to start by any triggering event which converts usual arouser in anger (Felgoise et al., 2006). In the case of consumer behavior, any service failure can result in precipitating consumer anger (Bougie et al., 2003). Similarly, this study also proves that service failure by any company can result in activating consumer anger, which can be harmful to the companies in many ways. The second variable discussed in this study is the consumer's regret. Marcel, Zeelenberg & Pieters (2004), states that regret arises when people think that the output gained can be different when altering past choices. Regret act as a force to change consumers' future actions (M'Barek & Gharbi, 2012). Our study identifies that regret can result in generating negative actions such as NWOM. These actions can result in reducing the overall company's reputation and customers' trust(Bui et al., 2011). The third variable of this study is revenge, Aquino et al. (2006), states that revenge is any action taken against the party that has caused any harm. Simphiwe et al. (2012) suggest that any service failure can result in indirect or direct revenge by the consumers. But this study identifies that revenge cannot be triggered by anger and regret. This can be due to the misinterpretation of the variable revenge by the respective sample of the research. Moreover, the last variable is a NWOM, is considered as an important factor in expressing consumers' regret and anger. As per the analysis, this has been identified that in Pakistan, online food delivery services such as foodpanda can initiate anger and regret in consumers due to any service failure which can result in NWOM on social media platforms. However, revenge is not considered to be the reason for such outcomes. Therefore, companies should work to manage customers' anger through effective solutions, which can help them in preventing NWOM.

### AUTHOR CONTRIBUTION

Sadia Lateef: Abstract, Keywords, Introduction, part of literature, data collection, Interpretation
Javeria Kamran: Part of literature, Conclusion, Recommendations, Data collection

Mustafa Waseem Yousuf Zai: Methodology, Part of literature, Data collection
Marium Mateen Khan: Problem statement, Data Analysis, Part of Literature, Discussion

## DATA AVAILABILTY STATEMENT

The data used in this research is primary data, collected from consumers. The data is available with the researchers.

## CONFLICT OF INTEREST

No conflict of interest

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## REFERENCES

Ahmed, A., & Ahsan, H. (2011). Contribution of services sector in the economy of Pakistan. *Working Papers & Research Reports*, *2011*.

Aquino, K. F., Tripp, T. M., & Bies, R. J. (2006). Getting even or moving on? Power, procedural justice, and types of offense as predictors of revenge, forgiveness, reconciliation, and avoidance in organizations. The Journal of Applied Psychology, 91(3), 653–668. https://doi.org/10.1037/0021-9010.91.3.653

Azemi, Y., Ozuem, W., & Howell, K. E. (2020). The effects of online negative word-of-mouth on dissatisfied customers: A frustration–aggression perspective. Psychology & Marketing, 37(4), 564-577.

Bechwati, N. N., & Morrin, M. (2003). Outraged Consumers: Getting Even at the Expense of Getting a Good Deal. *Journal of Consumer Psychology*, *13*(4), 440–453. https://doi.org/10.1207/S15327663JCP1304_11

Bedi, A., & Schat, A. C. H. (2017). Employee revenge against uncivil customers. *Journal of Services Marketing*, *31*(6), 636–649. https://doi.org/10.1108/JSM-01-2016-0003

Bonifield, C., & Cole, C. (2007). Affective responses to service failure: Anger, regret, and retaliatory versus conciliatory responses. *Marketing Letters*, *18*(1–2), 85–99. https://doi.org/10.1007/s11002-006-9006-6

Bougie, R., Pieters, R., & Zeelenberg, M. (2003). Angry Customers don't Come Back, They Get Back: The Experience and Behavioral Implications of Anger and Dissatisfaction in Services. *Journal of the Academy of Marketing Science*, *31*(4), 377–393. https://doi.org/10.1177/0092070303254412

Breitsohl, J., & Garrod, B. (2016). Assessing tourists' cognitive, emotional and behavioural reactions to an unethical destination incident. *Tourism Management*, *54*(20), 209-220.

Bui, M., Krishen, A. S., & Bates, K. (2011). Modeling regret effects on consumer post-purchase decisions. *European Journal of Marketing*, *45*(7/8), 1068–1090. https://doi.org/10.1108/03090561111137615

Burdon, E. S. (2018, May 26). How to Handle Anger And Revenge. Retrieved November 28, 2019, from Medium website: https://medium.com/pursuing-progress/how-to-handle-anger-and-revenge-2b1e1b975a5c

Correa, J. C., Garzón, W., Brooker, P., Sakarkar, G., Carranza, S. A., Yunado, L., & Rincón, A. (2019). Evaluation of collaborative consumption of food delivery services through web

mining techniques. *Journal of Retailing and Consumer Services*, *46*, 45–50.
https://doi.org/10.1016/j.jretconser.2018.05.002

Dallimore, K. S., Sparks, B. A., & Butcher, K. (2007). The influence of angry customer outbursts
on service providers' facial displays and affective states. *Journal of Service
Research*, *10*(1), 78-92.

Das, J. (2018). Consumer perception towards 'online food ordering and delivery services': An
empirical study. *Journal of Management*, *5*(5), 155-163.

Dawn.Com. (2016, September 3). Foodpanda generates additional Rs1bn for Pakistan&#39;s
food delivery market. Retrieved October 18, 2019, from DAWN.COM website:
http://www.dawn.com/news/1281787

DiPietro, R. (2017). Restaurant and foodservice research: A critical reflection behind and an
optimistic look ahead. *International Journal of Contemporary Hospitality
Management*, *29*(4), 1203–1234. https://doi.org/10.1108/IJCHM-01-2016-0046

Elshout, M., Nelissen, R. M. A., & van Beest, I. (2015). Vengeance is self-focused: Comparing
vengeful to anger-driven responses. *Cognition and Emotion*, *29*(7), 1239–1255.
https://doi.org/10.1080/02699931.2014.976181

Felgoise, S., Nezu, A. M., Nezu, C. M., & Reinecke, M. A. (2006). *Encyclopedia of Cognitive
Behavior Therapy*. Springer Science & Business Media.

Funches, V. (2011). The consumer anger phenomena: Causes and consequences. *Journal of
Services Marketing*, *25*(6), 420–428. https://doi.org/10.1108/08876041111161014

Garson, G. D. (2016). *Partial Least Squares*. 262.

Gilal, F. G., Zhang, J., Gilal, N. G., & Gilal, R. G. (2018). Integrating self-determined needs into
the relationship among product design, willingness-to-pay a premium, and word-of-
mouth: a cross-cultural gender-specific study. *Psychology Research and Behavior
Management*, *11*, 227-241.

Gilal, F. G., Zhang, J., Paul, J., & Gilal, N. G. (2019). The role of self-determination theory in
marketing science: An integrative review and agenda for research. *European
Management Journal*, *37*(1), 29-44.

Gilal, F. G., Zhang, J., Gilal, R. G., & Gilal, N. G. (2020a). Linking motivational regulation to
brand passion in a moderated model of customer gender and age: an organismic
integration theory perspective. *Review of Managerial Science*, *14*(1), 87-113.

Gilal, F. G., Gilal, N. G., Tariq, B., Gilal, R. G., Gilal, R. G., Gong, Z., & Channa, N. A. (2020b).
Intergenerational differences in fans' motivation to watch the T20 world cup: A
generation cohort theory perspective. *International Journal of Sports Marketing and
Sponsorship*.

Gilal, F. G., Gadhi, A. K., Gilal, R. G., Gilal, N. G., Zhang, N., & Gong, Z. (2020c). Towards
an Integrated Model of Customer Religiosity: A Self-Determination Theory
Perspective. *Central European Management Journal*, *28*(1), 16-37.

Godes, D., & Mayzlin, D. (2004). Using Online Conversations to Study Word-of-Mouth
Communication. *Marketing Science*, *23*(4), 545–560.
https://doi.org/10.1287/mksc.1040.0071

Greener, S. (2008). Business research methods.

Grégoire, Y., & Fisher, R. J. (2006). The effects of relationship quality on customer retaliation.
*Marketing Letters*, *17*(1), 31–46. https://doi.org/10.1007/s11002-006-3796-4

Grégoire, Y., Tripp, T. M., & Legoux, R. (2009). When Customer Love Turns into Lasting
Hate:The Effects of Relationship Strength and Time on Customer Revenge and
Avoidance. https://doi.org/10.1509/jmkg.73.6.18

Hair, Joe F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of
partial least squares structural equation modeling in marketing research. *Journal of the*

*Academy of Marketing Science*, *40*(3), 414–433. https://doi.org/10.1007/s11747-011-0261-6

Hair, Joseph F. (Ed.). (2014). *Multivariate data analysis* (7. ed., Pearson new internat. ed). Harlow: Pearson.

Hall, K. (2013). Revenge: Will You Feel Better? Retrieved November 28, 2019, from Psychology Today website: http://www.psychologytoday.com/blog/pieces-mind/201309/revenge-will-you-feel-better

Hennig-Thurau, Thorsten, Kevin P. Gwinner, Gianfranco Walsh, and Dwayne D. Gremler (2004), Electronic Word-of-Mouth via Consumer-Opinion Platforms: What Motivates Consumers to Articulate Themselves on the Internet? *Journal of Interactive Marketing, 18*(1), 38-52.

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, *116*(1), 2–20. https://doi.org/10.1108/IMDS-09-2015-0382

Herr, P. M., Kardes, F. R., & Kim, J. (1991). Effects of Word-of-Mouth and Product-Attribute Information on Persuasion: An Accessibility-Diagnosticity Perspective. *Journal of Consumer Research*, *17*(4), 454.

Hsin Chang, H., & Wen Chen, S. (2008). The impact of online store environment cues on purchase intention: Trust and perceived risk as a mediator. *Online Information Review*, *32*(6), 818–841. https://doi.org/10.1108/14684520810923953

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Jackson, J. C., Choi, V. K., & Gelfand, M. J. (2019). Revenge: A multilevel review and synthesis. *Annual Review of Psychology*, *70*, 319-345.

Joireman, J., Grégoire, Y., Devezer, B., & Tripp, T. M. (2013). When do customers offer firms a "second chance" following a double deviation? The impact of inferred firm motives on customer revenge and reconciliation. *Journal of Retailing*, *89*(3), 315–337. https://doi.org/10.1016/j.jretai.2013.03.002

Kim, S. Y. (2016). Negative word of mouth intentions during self-service technology failures: The mediating role of regret. Journal of Service Science Research, 8(1), 41–55. doi:10.1007/s12927-016-0002-y

Kimberlin, C. L., & Winterstein, A. G. (2008). Validity and reliability of measurement instruments used in research. *American Journal of Health-System Pharmacy*, *65*(23), 2276–2284. https://doi.org/10.2146/ajhp070364

Laczniak, R. N., DeCarlo, T. E., & Ramaswami, S. N. (2001). Consumers' Responses to Negative Word-of-Mouth Communication: An Attribution Theory Perspective. *Journal of Consumer Psychology*, *11*(1), 57–73. https://doi.org/10.1207/S15327663JCP1101_5

Leak, R. L., Woodham, O. P., & McNeil, K. R. (2015). Speaking candidly: How managers' political stances affect consumers' brand attitudes. *Journal of Product & Brand Management*, *24*(5), 494–503. https://doi.org/10.1108/JPBM-08-2014-0693

Lee, J.-S., Pan, S., & Tsai, H. (2013). Examining perceived betrayal, desire for revenge and avoidance, and the moderating effect of relational benefits. *International Journal of Hospitality Management*, *32*, 80–90. https://doi.org/10.1016/j.ijhm.2012.04.006

Lengyel, C. O., Zello, G. A., Berenbaum, S. L., Henry, C. J., & Whiting, S. J. (2003). A Model for Food Service Delivery and Quality of Life in Long-Term Care Facilities. In M. J. Sirgy, D. Rahtz, & A. C. Samli (Eds.), *Advances in Quality-of-Life Theory and Research* (pp. 3–12). https://doi.org/10.1007/978-94-017-0387-1_1

Liao, C., Liu, C.-C., Liu, Y.-P., To, P.-L., & Lin, H.-N. (2011). Applying the Expectancy Disconfirmation and Regret Theories to Online Consumer Behavior. *Cyberpsychology, Behavior, and Social Networking*, *14*(4), 241–246. https://doi.org/10.1089/cyber.2009.0236

Limayem, M., Hirt, S. G., & Cheung, C. M. K. (2007). How Habit Limits the Predictive Power of Intention: The Case of Information Systems Continuance. *MIS Quarterly*, *31*, 705–737. https://doi.org/10.2307/25148817

Litvin, S. W., Goldsmith, R. E., & Pan, B. (2008). Electronic word-of-mouth in hospitality and tourism management. *Tourism management*, *29*(3), 458-468.

M'Barek, M. B., & Gharbi, A. (2012). How Does Regret Influence Consumer's Behavior? 11.

Mehta, G., Iyer, T., & Yadav, D. J. (2019). A study on adoption of social media by Food Ordering & Delivering companies for successful development of Relationship Marketing. 6(2), 11.

Newman, I., Benz, C. R., & Ridenour, P. C. S. (1998). Qualitative-quantitative Research Methodology: Exploring the Interactive Continuum. SIU Press.

Ortiz, J., Chiu, T.-S., Wen-Hai, C., & Hsu, C.-W. (2017). Perceived justice, emotions, and behavioral intentions in the Taiwanese food and beverage industry. *International Journal of Conflict Management*, *28*(4), 437–463. https://doi.org/10.1108/IJCMA-10-2016-0084

Pihlaja, J., Saarijärvi, H., Spence, M. T., & Yrjölä, M. (2017). From electronic WOM to social EWOM: Bridging the trust deficit. *Journal of Marketing Theory and Practice*, *25*(4), 340-356.

Rathore, S. S., & Chaudhary, M. (2018). *Consumer's Perception on Online Food Ordering*. *8*(4), 6.

Sánchez-García, I., & Currás-Pérez, R. (2011). Effects of dissatisfaction in tourist services: The role of anger and regret. *Tourism Management*, *32*(6), 1397–1406. https://doi.org/10.1016/j.tourman.2011.01.016

Schoefer, K., & Diamantopoulos, A. (2008). The role of emotions in translating perceptions of (in) justice into postcomplaint behavioral responses. *Journal of service research*, *11*(1), 91-103.

Simphiwe, M., Anne, M., Trilby, R., & Elsamari, B. (2012). Customer relationship satisfaction and revenge behaviors: Examining the effects of power. *African Journal of Business Management*, *6*(39), 10445–10457. https://doi.org/10.5897/AJBM12.953

Skowronek, D., & Duerr, L. (2009.). The convenience of nonprobability: Survey strategies for small academic libraries | Skowronek | College & Research Libraries News. https://doi.org/10.5860/crln.70.7.8221

Steever, Z., Karwan, M., & Murray, C. (2019). Dynamic courier routing for a food delivery service. *Computers & Operations Research*, *107*, 173–188. https://doi.org/10.1016/j.cor.2019.03.008

Stockman, S., Van Hoye, G., & da Motta Veiga, S. (2020). Negative word-of-mouth and applicant attraction: The role of employer brand equity. *Journal of Vocational Behavior*, *118*, 103368. (InPress)

Svari, S., & Erling Olsen, L. (2012). The role of emotions in customer complaint behaviors. *International Journal of Quality and Service Sciences*, *4*(3), 270–282. https://doi.org/10.1108/17566691211269585

Sweeney, J., Mazzarol, T., & Soutar, G. (2005). The Difference between Positive and Negative Word of Mouth: Emotion as a Differentiator? *Broadening the Boundaries*, CB 331-337. Retrieved from https://research-repository.uwa.edu.au/en/publications/the-difference-between-positive-and-negative-word-of-mouth-emotio

Sweeney, J., Payne, A., Frow, P., & Liu, D. (2020). Customer Advocacy: A Distinctive Form of Word of Mouth. *Journal of Service Research*, *23*(2), 139-155.

The changing market for food delivery | McKinsey. (2011). Retrieved October 8, 2019, from https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-changing-market-for-food-delivery

Timothy Coombs, W., & Holladay, S. J. (2007). The negative communication dynamic: Exploring the impact of stakeholder affect on behavioral intentions. *Journal of Communication Management*, *11*(4), 300–312. https://doi.org/10.1108/13632540710843913

Tomacruz, M. D. G., & Flor, N. T. (2018). Family perception and their buying behavior for home-delivered food. *International Journal of Tourism Sciences*, *18*(4), 237–246. https://doi.org/10.1080/15980634.2018.1551308

Tribune.com.pk. (2014, August 3). Digital economy: Foodpanda eating its way into online ordering business. Retrieved October 18, 2019, from The Express Tribune website: https://tribune.com.pk/story/743795/digital-economy-foodpanda-eating-its-way-into-online-ordering-business/

Tribune.com.pk. (2018, December 27). 2018 year in review: Wrapping up Foodpanda's success journey. Retrieved October 18, 2019, from The Express Tribune website: https://tribune.com.pk/story/1874851/4-2018-year-in-review-wrapping-up-foodpandas-success-journey/

Tripp, T. M., & Bies, R. J. (2010). "Righteous" Anger and Revenge in the Workplace: The Fantasies, the Feuds, the Forgiveness. In M. Potegal, G. Stemmler, & C. Spielberger (Eds.), *International Handbook of Anger* (pp. 413–431). https://doi.org/10.1007/978-0-387-89676-2_24

Tronvoll, B. (2011). Negative emotions and their effect on customer complaint behavior. Journal of Service Management, *22*(1), 111-134.

van Doorn, J. (2018). Anger, Feelings of Revenge, and Hate. *Emotion Review*, *10*(4), 321–322. https://doi.org/10.1177/1754073918783260

Voorhees, C. M., Fombelle, P. W., Gregoire, Y., Bone, S., Gustafsson, A., Sousa, R., & Walkowiak, T. (2017). Service encounters, experiences and the customer journey: Defining the field and a call to expand our lens. *Journal of Business Research*, *79*, 269-280.

Walsh, G., Deseniss, A., Ivens, S., & Schaarschmidt, M. (2019). Buffering the service failure-induced effect of anger on revenge. *Kybernetes*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/K-01-2019-0071

Wen-Hai, C., Yuan, C.-Y., Liu, M.-T., & Fang, J.-F. (2019). The effects of outward and inward negative emotions on consumers' desire for revenge and negative word of mouth. *Online Information Review*, *43*(5), 818–841. https://doi.org/10.1108/OIR-03-2016-0069

Wu, R., & Wang, C. L. (2017). The asymmetric impact of other-blame regret versus self-blame regret on negative word of mouth: Empirical evidence from China. *European Journal of Marketing*, *51*(11–12), 1799–1816. https://doi.org/10.1108/EJM-06-2015-0322

Yeh, C.-W. (2015). Linking customer verbal aggression and service sabotage. *Journal of Service Theory and Practice*, *25*(6), 877–896. https://doi.org/10.1108/JSTP-07-2014-0146

Zeelenberg, M, & Pieters, R. (2007). A Theory of Regret Regulation 1.0. *Journal of Consumer Psychology*, *17*(1), 3–18. https://doi.org/10.1207/s15327663jcp1701_3

Zeelenberg, Marcel, & Pieters, R. (1999). Comparing Service Delivery to What Might Have Been: Behavioral Responses to Regret and Disappointment. *Journal of Service Research*, *2*(1), 86–97. https://doi.org/10.1177/109467059921007

Zeelenberg, Marcel, & Pieters, R. (2004). Beyond valence in customer dissatisfaction. *Journal of Business Research*, *57*(4), 445–455. https://doi.org/10.1016/S0148-2963(02)00278-3

Zourrig, H., Chebat, J.-C., & Toffoli, R. (2009). Consumer revenge behavior: A cross-cultural perspective. *Journal of Business Research*, *62*(10), 995–1001. https://doi.org/10.1016/j.jbusres.2008.08.006

# Impacts of Workplace Stress: An Exploratory Cross-Sectional Study of Oil and Gas Sector in Pakistan

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## Abstract

Working eternally from the shoreline is all around considered as a distressing profession where work environment stress is accepted as a noteworthy danger aspect for mental ailment. Then again, stress-related substance relating to this part is scant. The aim of present research is to investigating the components of impacts of work-stress among the individuals working offshore in managerial cadres of oil and gas sector organizations at Pakistan. A self-designed instrument was used to gather information for this cross-sectional examination. Measure's legitimacy was built up by ascertaining Cronbach's alpha (0.914). Exploratory factor analysis (EFA) with Principal Component Analysis extraction method and Oblimin with Kaiser Normalization rotation method was applied on the collected information. Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) proved the suitability of the collected data for exploratory factor analysis. EFA distinguished four components for the impacts of work-stress: *Psychological*; *Performance*; *physiological*, and *Cognitive*. These components explained 73.62% of total variance. The component *Psychological* was the most noteworthy component. This investigation has not just recognized the significant impact components of work-stress in seaward oil organizations at Pakistan yet in addition gave an organized rundown of these components. Discoveries of the investigation will support analysts, employers, bosses and the specialists to devise and execute pressure avoidance and development technique. This is the ever first work of its sort in Pakistan.

*Keywords: Oil and gas sector, offshore, consequences of work-stress, impacts, exploratory factor analysis.*

## 1. Introduction

The concept of occupational stress has a complex nature. It is also known as job stress. It is a negative mental experience coming about as a result of stressors at the work environment (Stellman, 1998) and a diverse, multi-dimensional lively process where

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reasons of stress and occurrence of stress might happen right away or somewhat else. It results in psychosomatic and physiological issues (Stellman, 1998), for instance, cardiovascular disorders (Theorell & Karasek, 1996), mental disarranges (Stellman, 1998; Fingret, 2000), musculoskeletal misery (Carayon, Smith, & Haims, 1999) and gastrointestinal dissipates (Levenstein, 2000). Be that as it may, the impacts might be limited by the other psychosocial factors, for instance, people's handling advances (Stellman, 1998).

In earlier multiple examinations, working environment stress has been set up as a critical perilous factor for psychic unsteadiness amongst the people in a broad extent of occupations. It may not just influence the execution and effectualness of the people yet in addition negatively influence them physically, psychologically, and behaviorally (Ahmad, Hussain, Mughal, Mufti, & Saleem, 2019). A longitudinal survey in the UK uncovered that, during 1996-2001 and on an average, yearly 3642 new cases of employment related mental infirmity were recognized, and most by far of them were a result of occupation related pressure (Cherry, Chen, & McDonald, 2006). A study on the textile industry found 48% of the managers in higher stress levels (Ahmad, Hussain, Mughal, Mufti, & Saleem, 2018) while the investigation performed on the overall employees of the sector disclosed 61% in higher levels of stress (Ahmad, Hussain, Mughal, Mufti, Saleem, & Ahram, 2020b). Dozing issues, weariness, troubles in separating from work (Mette, Velasco, & Harth, 2018a; Chung, Lee, & Lee, 2017), diminutive drive, diminished execution, job uncertainty, absence, work-life contradiction, wellbeing issue, and quickened turnover are the hostile effects of workplace stress(Babatunde, 2013). It has been found that psychological stress damage employees' work execution, team execution, working relationship, joint effort among associates, and team strength (Islam, Muhajan, & Datta, 2012). Working in oil and gas fields is comprehensively seen as a trouble calling, and the people utilized in this occupation are accessible to both the stressors of general nature and those particular to the offshore workplace (Sutherland & Cooper, 1989; Parkes, 1998). Considering this background, this cross-sectional assessment is planned for investigating the impact components of workplace stress among the employees working in management cadre of oil and gas division of Pakistan.

Working environment stress is a universal phenomenon that adversely affects not only the physical health, psychological health and behaviors but also performance of the employees of any organization. An extensive research of the literature supports the relationship between workplace factors, stress and their impacts. Impacts of stress are different for different human beings because the perception of humans about stress is also different. Workplace stress is an open challenge to the proper working of organizations and employees. The rationale behind the present study is to explore the impact components of the workplace stress among the individuals working eternally from the shoreline and the study is exploratory up to the extent of Pakistani offshore oil and gas sector.

## 2. Literature Review

Numerous studies have so far been carried on the stress related affairs. It may be measuring perceived stress, identifying causes, exploring effects of work-stress, or finding out stress preventing and controling interventions. Howerve, lesser stress has been found in exploring or identifying the consequences of work-stress as compared to exploring the stressors. Li, Chen, Wu, and Sung (2001) found a positive correlation between work stress and workplace injuries. Shahid, Latif, Sohail, and Ashraf (2011) studied the stress related problem of bankers and explored that stress contribute to decline organizational performance, diminished employee overall performance, decreased quality of work, high staff turnover and absenteeism, augmented health problems such as anxiety, depression, headache and backache. Islam, Muhajan, and Datta (2012) showed that stress reduces employee work performance, team performance, team spirit, working relationship, cooperation between team members, however, impact depends on the individual's strength, personality, environment or situation and adoption process. Shikieri and Musa (2012) determined the factors related to occupational stress and their correlation with organizational performance in a private university of Sudan. The results showed that job stress impacts organizational accomplishments by dropping efficiency and eventually productivity. Ahmad and Ramzan (2013) concluded that occupational stress considerably decreases the performance of individuals. According to Kotteeswari and Sharief (2014) stress factors affect the performance of employees in a negative way. Banoand Malik (2014) investigated the impacts of occupational stressors on life satisfaction among private and government school teachers and found a negative correlation between occupational stress and life satisfaction. Barboza and Thomas (2015) identified high turnover, high absenteeism, decreased productivity, lower performance, low morale, high employee grievances and adverse physiological, behavioral, physical, Psychological, emotional effects as the consequences of stress among the employees of insurance sector. In a review of several prospective and high-quality studies, it has been concluded that severe job stress results in augmented possibility of human error and accident happening, mental health concerns, increased turnover in organizations, adverse physical, psychological and occupational consequences; starting with depression and anxiety, passed on to maladaptive behaviors, and ending in job burnout (Salvagioni, Melanda, Mesas, González, Gabani, & de Andrade, 2017; Giorgi, et al., 2017; Petrie, Crawford, Shand, & Harvey, 2020; Kerdpitak & Jermsittiparsert, 2020; Darling & Whitty, 2019; Richardsen, Martinussen, & Kaiser, 2019).

Number of studies has been conducted on stress related matters in general. Yet, such studies in relation to the individuals working offshore are limited. According to Cooper and Sutherland (1987), high proportion of offshore personnel has high level of nervousness. Parkes (1992) investigated the cerebral health of workforce in the oil industry and found that stress results in high level of anxiety amongst offshore workforce than amongst those functioning onshore. Parkes (1998) reviewed the stress-related literature pertaining to offshore workers and found that offshore workers face high level of anxiety, higher amount of work, and more sleep difficulties and

disturbances as compared to onshore personnel. Chen, Wong, and Yu (2008), working on the population of Chinese Off-shore oil workers, found a positive relationship between stress and "current drinking". Hystad, Saus, Saetrevik, and Eid, (2013) found physical fatigue, mental fatigue, and shortage of energy as the impacts of psychological stress among offshore oil and gas industry employees. In a study of German offshore wind industry, fatigue, difficulties detaching from work, sleeping problems; and musculoskeletal and gastrointestinal complaints were found as the consequences of stress at work (Mette, Garrido, Harth, Preisser, & Stefanie, 2018). Despite availability of some state-of-the-art stress-related literature in the offshore sector, no such work is found for offshore oil and gas industry at Pakistan. In attempting to explore impact components of work stress, the current study is the ever first of its sort in Pakistan. Although, several studies have been conducted in Pakistan on stress-related matters yet these studies pertained to other sectors.

## 3. Methodology

### 3.1. Preparation of questionnaire

So as to achieve the object of the present research, as placed in the preceding section, an extensive literature was reviewed for the impacts of work-stress besides having observations and study related feedback from the industry. Thereupon, in exploring the impact components of work stress on the employees, a data collection instrument was developed. It was consisted of 27 items and covered the domains, namely: psychological, performance, physiological, behavioural, emotional and cognitive. In order to identify these impact components, 5-point Likert-type scale was used. Reliability of the instrument was assessed by calculating Cronbach's alpha value which was found to be very good, explicitly 0.914. This scale ranged from 1 through 5, where '1' indicated 'no impact' and '5' indicated 'high impact' (1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree). Particular perspective of the study necessitated the development data collection instrument.

### 3.2. Participants

All in all, 100 participants from different positions of the management cadre participated in the survey which was conducted in the offshore oil and gas companies at Pakistan. All the participants were male employees as no female employee is assigned to perform offshore duties in Pakistan. They were comprised of country directors, drilling engineers and senior drilling engineers.

### 3.3. Analysis

So as to reach the objective of the study, EFA (exploratory factor analysis) with PCA (principal component analysis) as extraction method and Oblimin with Kaiser Normalization as rotation method was applied on the collected information. EFA was used to explore the underlying theoretical structure of the phenomena, that is, to find the impact components of workplace stress. Prior to the deployment of EFA on the data collected, suitability of the data for EFA was assessed through the Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy.

## 4. Results and Discussion

### 4.1. Bartlett's test of sphericity and the KMO measure of sampling adequacy for impacts of stress

In order to compute the final results, suitability of the data for factor analysis was checked. It was determined by using the Bartlett's test of sphericity and the KMO measure of sampling adequacy. Results of the test are shown in the Table 1. The value of KMO test came out to be 0.722 which is an acceptable value (Kaiser, 1974). The same table shows the significance of Bartlett's test of sphericity as 0.000 (this value is less than the required value of 0.05 (Bartlett, 1954)).

Table 1: Kaiser-Meyer-Olkin Measure of Sampling Adequacy

| KMO and Bartlett's Test | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .722 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 1932.368 |
| | df | 351 |
| | Sig. | .000 |

### 4.2. Exploratory factor analysis of impacts

Exploratory factor analysis was applied to explore the impact components of work-stress among the employees of offshore companies at Pakistan. Table 2 shows the results of the analysis. It is evident that 4 components were identified after the application of EFA using PCA as extraction method and Oblimin with Kaiser Normalization as rotation method. Extraction of the components was done on the basis of the scree plot criterion (Cattell, 1978). Figure 1 shows that four components are above the point of inflexion. The components before the point of inflexion are considered to be the most critical components because they explain a larger value of the total variance. All in all, 14 items loaded onto these four components. Majority of the items are loaded heavily (> .80) onto their respective components. Hence, the study sample size is proved to be in accordance with the guidelines of Guadagnoli and Velicer (1988) where they suggested that if the dataset has a number of high factors loading scores (> .80), then a lesser small size (n > 150) should be sufficient. Items below 0.6 loading value are suppressed deliberately. These components have been explained in the following sub-sections.

### 4.2.1 Component 1: Psychological

Five items loaded onto this component and loaded intensely. The item *'I have had trouble paying attention'* (0.907) emerged more vigorously. *I often experience confusion' (0.884)* and *'I experience difficulty in making decisions'* (0.829) also emerged vigorously. Fourth loaded item is '*My concentration and memory is impaired'* (0.746) whereas the fifth is '*I have difficulty with thought process'* with loading value of 0.689. All the items belong to the psychological impacts on the individuals; therefore, this factor is named as *psychological*. The component is the most critical component as it explains 37.85% of the total variance, Table 2.

### *4.2.2    Component 2: Performance*

Three items are loaded onto this component and loaded heavily. It is the second most critical component and explains 15.03% of the total variance. First loaded item is '*I experience time management issues*' with loading value of 0.874. The second loaded item is '*I am unable to complete the task as per schedule*' (0.817) while the third is '*I feel that deadlines are difficult to meet in my work*' (0.781)**.** All these items belong to the individuals' performance in executing their assigned jobs; therefore, this factor is named as *performance*.

### *4.2.3    Component 3: Physiological*

This component consists of three items. All the items loaded heavily onto the component. These items are '*I have headaches*'; '*I feel myself trembling*'; and '*I lack physical energy*' with loading values 0.883, 0.778 and 0.660 respectively. All the items loaded onto this component belong to the physiological effects on the individuals; therefore, the component is named as *physiological*. The component explains 12.27% of the total variance.

### *4.2.4    Component 4: Cognitive*

This component also consists of three items. These items are '*I am unable to utilize all the resources*', *My judgment is not good*', and '*I am ineffective in resolving family issues*' with loading values 0.829, 0.807, and 0.726 respectively. All the items loaded onto this component belong to the *cognitive ability* of the individuals; therefore, the component is named as *Cognitive*. The component explains 8.48% of the total variance.
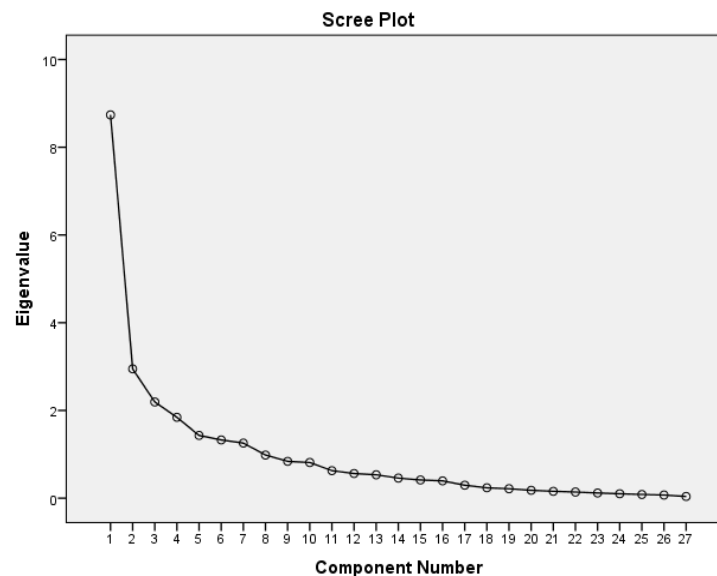


Figure 2: Scree Plot

## 4.3. Reliability of components

The results placed in Table 2 also show the Cronbach alpha coefficient for all of these components that emerged for the impacts of stress. According to these results, all the components have reliability coefficients i.e. Cronbach alpha greater than 0.7 which is quite acceptable.

## 4.4. Inter-factor correlation of components

Table 3 explains the correlation among the extracted components. It is evident that each component is explaining a construct which is different from the others as the correlation values are much lesser than 0.5. The correlation matrix placed in Table 3 is just to demonstrate the distinctiveness of the components.

Table 3: Component Correlation Matrix

| Component | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1 | 1.000 | | | |
| 2 | .250 | 1.000 | | |
| 3 | .143 | .130 | 1.000 | |
| 4 | .447 | .124 | .113 | 1.000 |

## 4.5. Comparison with other studies

The study aimed at exploring impacts of work-stress among the individuals working in management cadre of offshore oil and gas companies at Pakistan. This investigation has not just recognized the significant components for the impacts of work-stress in seaward oil organizations at Pakistan yet in addition gave an organized rundown of these components. The present study revealed four stress impact components, namely: psychological, performance, physiological, and cognitive. Simply it is found that the work-stress has potential adverse impacts on the employees' psychological conditions, performance, physiology, and cognitive ability. Mette et al. (2018), in their work on offshore wind industry, found fatigue, musculoskeletal and gastrointestinal problems as the consequences of stress at work. These impacts belong to the component physiological impacts; found in the current study as stress impact component. Our finding, up to the extent of physiological impacts, is also consistent with the earlier research done on the individuals working in offshore oil and gas sector at Norway (Riethmeister, Brouwer, van der Klink, & Bültma, 2016) and also those relating to the seafaring branch (Hystad, Saus, Saetrevik, & Eid, 2013) besides the results of work done by Bjerkan (2011) in comparing onshore and offshore employees of Norwegian oil companies. The impact *lack of energy,* found by Hystad et al. (2013), correspond to the item *I lack physical energy* found in our study in component *physiological*. In contrast to dissimilar outcomes concerning offshore and onshore workers'

psychological healthiness (Parkes, 2002; Berthelsen, Pallesen, Bjorvatn, & Knardahl, 2015; Parkes, 1998), symptoms of anxiety or depression were not found in our study.

## 5. Conclusion

The study identified the impact components of work-stress amongst the management cadre offshore employees of oil and gas sector in Pakistan. Exploratory factor analysis (EFA) was deployed on the information gathered in a cross-sectional examination. Four components indicating impacts of work-stress have been identified. The components are psychological, performance, psychological, and cognitive. The component *psychological* is the most critical component. Interventions by the organizations are indispensable to turn the corner. More research is obligatory to take a broad view on the outcomes of this study and to institute a consistent demonstration of work-stress impacts on the individuals working offshore. For upcoming explorations, it is suggested that quantitative research works with larger study samples be carried out to explore the actual impact of work-stress on the offshore employees.

### AUTHOR CONTRIBUTION

Aftab Ahmad: Conceptualization, Methodology, Data Analysis, Writing-Final draft preparation
Mudasrah Rahman: Data Collection, Writing- Original draft preparation.
Shagufta Yasmin: Data Collection, Writing- Reviewing and Editing
Nasif Raza Jaffri: Writing- Review, Supervision
Usama Abrar: Data Collection, Software-Data Analysis,
Saad Aslam: Data Collection, Writing- Reviewing and Editing

### DATA AVAILABILTY STATEMENT

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

### CONFLICT OF INTEREST

No conflict of interest

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## REFERENCES

Ahmad, A., & Ramzan, M. (2013). Effects of Job Stress on Employees Job Performance: A Study on Banking Sector of Pakistan. IOSR Journal of Business and Management , 61-68.

Ahmad, A., Hussain, A., Mughal, M. P., Mufti, N. A., & Saleem, M. Q. (2019). Effects of Workplace Stress on Managers of Textile Industries of Developing Countries: A Case Study from Pakistan. In J. Kantola, S. Nazir, & T. Barath (Eds.), Advances in Intelligent

Systems and Computing (Advances in Human Factors, Business Management and Society ed., Vol. 783, pp. 500-507). Springer, Cham.

Ahmad, A., Hussain, A., Mughal, M. P., Mufti, N. A., & Saleem, M. Q. (2018). Workplace Stress Assessment Among Managers of Textile Industries at Developing Countries: A Case Study from Pakistan. In Advances in Human Factors, Business Management and Leadership, AHFE 2017 (Vol. 594, pp. 382-391). Cham: Springer.

Ahmad, A., Hussain, A., Mughal, M. P., Mufti, N. A., Saleem, M. Q., & Ahram, T. (2020b). Perceived stress: levels and role of demographics – a cross-sectional study of textile industry employees. Industria Textila, 71 (2), 180-185.

Babatunde, A. (2013). Occupational Stress: A Review on Conceptualisations, Causes and Cure. Economic Insights – Trends and Challenges, II (LXV) (3), 73-80.

Bano, S., & Malik, S. (2014). Effect of Occupational Stress on Life Satisfaction among Private. Journal of Independent Studies and Research-Management, Social Sciences and Economics, 12.

Barboza, C., & Thomas, B. (2015). Impact of Stress on Productivity of Employees in Insurance Sector - Dakshina. International Journal in Management and Social Science , 428-437.

Bartlett, M. S. (1954). A note on the multiplying factors for various chi square approximations. Journal of Royal Statistical Society, 16 (Series B), 296-298.

Berthelsen, M., Pallesen, S., Bjorvatn, B., & Knardahl, S. (2015). Shift schedules, work factors, and mental health among onshore and offshore workers in the Norwegian petroleum industry. Industrial Health, 53, 280-292.

Bjerkan, A. M. (2011). Work and health: a comparison between Norwegian onshore and offshore employees. Work, 40 (2), 125–42.

Carayon, P., Smith, M. J., & Haims, M. C. (1999). Work organization, job stress, and work-related musculoskeletal disorders. Human Factors, 41 (4), 644-663.

Cattell, R. B. (1978). The scientific use of factor analysis inbehavioral and life sciences. New York, NY: Plenum Press.

Chen, W. Q., Wong, T. W., & Yu, I. T.-S. (2008). Wei Qing Chen, Tze Wai Wong, and Ignatius Tak-Sun Yu, Association of Occupational Stress and Social Support with Health related Behaviors among Chinese Offshore Oil Workers. Journal of Occupational Health, 50, 262-269.

Cherry, N. M., Chen, Y., & McDonald, J. C. (2006). Reported incidence and precipitating factors of work-related stress and mental ill-health in the United Kingdom (1996–2001). Occupational Medicine, 56 (6), 414–421.

Chung, Y.-S., Lee, P. T.-W., & Lee, J.-K. (2017). Burnout in seafarers: its antecedents and effects on incidents at sea. Maritime Policy & Management, 44 (7), 916-931.

Cooper, C. L., & Sutherland, V. J. (1987). Job stress, mental health, and accidents among offshore workers in the oil and gas extraction industries. Journal of Occupational Medicine, 29, 119-125.

Fingret, A. (2000). Occupational mental health: a brief history. Occupational Medicine, 50 (5), 289-293.

Giorgi, G., Arcangeli, G., Perminiene, M., Lorini, C., Ariza-Montes, A., Fiz-Perez, J., et al. (2017). Work-Related Stress in the Banking Sector: A Review of Incidence, Correlated Factors, and Major Consequences. Frontiers in Psychology, 8, 2166.

Guadagnoli, E., & Velicer, W. F. (1988). Relation to sample size to the stability of component patterns. Psychological Bulletin, 103 (2), 265-275.

Hystad, S. W., Saus, E.-R., Saetrevik, B., & Eid, J. (2013). Fatigue in seafarers working in the offshore oil and gas re-supply industry: effects of safety climate, psychosocial work environment and shift arrangement. International Maritime Health, 64 (2), 72–9.

Islam, J. N., Muhajan, H. K., & Datta, R. (2012). Stress Management Policy Analysis: A preventive approach. International Journal of Economics and Research, 01-17.

Kaiser, H. F. (1974). An index of factorial simplicity. Psychometrica, 39 (31-36).

Kotteeswari, M., & Sharief, S. T. (2014). Job Stress and Its Impact on Employees' Performance: A Study with Reference to Employees Working in BPOS. International Journal of Advanced Research in Management (IJARM), 5 (2), 19-27.

Levenstein, S. (2000). The Very Model of a Modern Etiology: A Biopsychosocial View of Peptic Ulcer. Psychosomatic Medicine, 62 (2), 176-185.

Li, C. Y., Chen, K. R., Wu, C. H., & Sung, F. C. (2001). Job stress and dissatisfaction in association with non-fatal injuries on the job in a cross-sectional sample of petrochemical workers. Society of Occupational Medicine, 51 (1), 50-55.

Mette, J., Garrido, M. V., Harth, V., Preisser, A. M., & Stefanie, M. (2018). Healthy offshore workforce? A qualitative study on offshore wind employees' occupational strain, health, and coping. BMC Public Health, 18 (172).

Mette, J., Velasco, M. G., & Harth, V. (2018a). Healthy offshore workforce? A qualitative study on offshore wind employees' occupational strain, health, and coping. BMC Public Health, 18, 172.

Parkes, K. R. (1992). Mental health in oil industry: A comparative study of onshore and offshore employees. Psychological Medicine, 22, 997-1009.

Parkes, K. R. (1998). Psychosocial aspects of stress, health and safety on North Sea installation. Scandinavian Journal of Work, Environment & Health, 24, 321-333.

Parkes, K. R. (2002). Psychosocial aspects of work and health in the North Sea oil and gas industry. University of Oxford for the Health and Safety Executive, Sudbury.

Riethmeister, V., Brouwer, S., van der Klink, J., & Bültma, U. (2016). Work, eat and sleep: towards a healthy ageing at work program offshore. BMC Public Health, 16 (1), 134.

Salvagioni, D. A., Melanda, F. N., Mesas, A. E., González, A. D., Gabani, F. L., & de Andrade, S. M. (2017). Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. PLoS ONE, 12 (10), Article e0185781.

Shahid, M. N., Latif, K., Sohail, N., & Ashraf, M. A. (2011). Work stress and employee performance in banking sector, Evidence from District Faisalabad, Pakistan. Asian Journal of Business and Management Sciences, 1, 38-47.

Shikieri, A. B., & Musa, H. A. (2012). Factors associated with Occupational Stress and Their Effects on organizational performance in a Sudanese Universities. Creative Education, 3 (SciRes), 134-144.

Stellman, J. (1998). Encyclopedia of Occupational Health and Safety (4th ed.). Geneva: ILO.

Sutherland, V. J., & Cooper, C. L. (1989). Occupational stress in the offshore oil and gas industry. International Reviews of Ergonomics, 2, 183-215.

Theorell, T., & Karasek, R. A. (1996). Current issues relating to psychosocial job strain and cardiovascular disease research. Journal of Occupational Health Psychology, 1 (1), 9-26.

differently in alternate periods of low and high inflation. For instance, in low inflation periods, absolute returns

from an inflation hedge may be lower than any other alternative investment choice. For high inflation periods, these absolute returns will be higher. Around the globe, inflation is the most common and unending crisis. It is also widely believed that inflation is the reason behind inefficient resource allocation and as a result decreases the prospects of economic prosperity. Rising inflation does not only hamper economic growth but is also a great threat for investors. Institutional investors are not the only ones dreading inflation because consumer prices directly influence their liabilities. Private investors too are badly stuck in an inflation whirlpool as they also want to safeguard their real capital.

Our study is very crucial to the existing literature as it adds both empirically and practically. It contributes to the existing literature in two areas: inflation hedging and strategic asset allocation. Since other similar studies in the world conclude differently as per their context and circumstances, their results cannot be generalized for a developing country like Pakistan; which is also facing a lot of political, economic, security, and social disturbances. Inflation hedging research is in its infancy in Pakistan. Few studies have been conducted that deal with major assets like stocks and gold using only basic techniques. Thus, this study is an attempt at exploring inflation hedging capabilities of various asset classes by using some new techniques to get a deeper insight into the phenomenon.

## 2. Literature Review

### 2.1. Cash and Inflation:

Studies dealing with the effects of inflation on asset returns have their foundations in the Fisher theory of interest rate. It states that the sum of real rate and the compensation for expected inflation $E(\pi)$ equals the nominal rate i (Fisher, 1930).

According to the Fisher hypothesis, expected inflation does not affect real interest rates and is constant over time. If this statement is true, short-term securities like T-bills will prove to be a perfect inflation hedge. These short-term instruments are also denoted as cash in the investment industry. Hoevenaars, Molenaar, Schotman, and Steenkamp (2008) show that as the inflation rate changes, T-bills are the ones that immediately get on with the change. T-bill appears to be the best hedge against inflation for all horizons due to this characteristic.

*$H_1$: Cash is positively associated with the rate of inflation.*

### 2.2. Gold and Inflation:

Gold can be used both as a tactical inflation hedge as well as a long-term strategic asset. In periods where inflation becomes a concern for investors, gold is likely to outperform the known financial assets used for hedging by consistently delivering lower average volatility (Shahzad, Mensi, Hammoudeh, Sohail, & Al-Yahyaee, 2019). Also, the gold market is very liquid and versatile so investors can choose from a set of different

products on how to hedge their inflation risk (Dempster & Artigas, 2010). As an individual asset, gold is considered to be a very risky one. The returns on gold are generally independent of the returns on other assets (Beetsma, Chen, & van Wijnbergen, 2019).

Beckmann and Czudaj (2013), using the data for four major economies; the USA, the UK, the Euro Area, and Japan, test the hedging ability of gold from a new perspective. The results of the study suggest that in the longer run, gold is a partial hedge of future inflation and this ability is greater for the USA and the UK as compared to the other two economies. Using time-series data of gold prices, inflation, and economic growth for 1997-2011, the study reveals that gold turned out to be a good investment for hedging inflation not only in the long-run but also in the short-run.

*H₂: Gold is positively associated with the rate of inflation.*

## 2.3. Stocks and Inflation:

For investors, it is considered an implicit understanding that for longer horizons more focus should be diverted towards stocks as compared to investment. The underlying concept of this strategy is that with the increase in the investment horizon, risks associated with stocks start diminishing. The academic literature on stocks as an inflation hedge may sometimes give readers the notion that stocks are viewed as long term bonds by authors. But there is a huge difference between the two asset classes. A lot of previous studies have established that in the short-run there is a negative relationship between returns on stock and inflation. Only a few studies have reported the existence of the Fisher effect for stock returns in the longer horizon.

The empirical work of Anari and Kolari (2001) revolves around six industrial countries. The relationship between stock prices and inflation is initially negative but becomes positive in the long run. Hondroyiannis and Papapetrou (2006) study the dynamic relationship between real returns of stocks and both anticipated and unanticipated inflation for the Greek market. Another stance on the impact of macroeconomic variables on stock prices is taken by Erdem, Arslan, and Erdem (2005). Variables such as inflation, interest rate, money supply, industrial production, and exchange rate are considered to be very influential on stock prices and are so used to examine the nature of the relationship. An investor needs to know how these variables shape the returns of stocks so that they can be vigilant about the success of their portfolios.

*H₃: Stock is positively associated with the rate of inflation.*

## 2.4. Foreign Currency and Inflation:

Currencies are traded in foreign exchange markets which are very fluctuant and fast-paced around the globe. The foreign exchange market is where currencies are bought and sold; meaning they are traded. It is the most active of all financial markets (Froot & Thaler, 1990). It has become so popular now that even larger financial institutions,

corporations, central banks, hedge funds, etc. are taking part in the excitement (Barnett, Wang, Wang, & Wu, 2019; Morvillier, 2020).

Currencies are traded for one of the two reasons that follow. Buying and selling the currencies can be used as a hedge for fluctuations in prices of the domestic currency. Secondly, when investors are not aware of the global economic turmoil, currency trade can be used as a way of speculation. During difficult situations, foreign currency is a complete and safer way to hedge because they are not related to price volatility in domestic stocks, bonds, and other asset classes. The value of the currency of a country is heavily influenced by the rate of inflation currently prevailing in the country. Inflation does not only influence the value of the domestic currency but also affects the exchange rate the currency has with other currencies.

*H₄: Foreign Currency is positively associated with a rate of inflation.*

## 2.5. Real estate and Inflation:

The investors find themselves wondering what assets should be used to protect their portfolios against inflation (Taderera & Akinsomi, 2020). Various asset classes have been subject to the academic literature on determining their inflation protecting qualities. A study by Fama and Schwert (1977) proves that for expected as well as unexpected inflation private residential real estate is an effective way to hedge. Similar to these results is a study conducted by Hartzell, Hekmanand, and Miles (1987).

A recent study by Lee (2014) determines the hedging capabilities of Malaysian residential property for the period 1999-2012. The study is carried out in two stages. Firstly, using the Fama and Schwert (1977) model, hedging effectiveness of residential property over the short-run is examined. Then the dynamic ordinary least squares (DOLS) model is used for the long-run. Lee, Stevenson, and Lee (2014) examine European real estate stocks which show a little hedging capability in the short-run. For developed markets over the long horizons, these do appear to be a good hedge against expected inflation but no significant result is found for emerging markets (Adler, Lama, & Medina, 2019).

*H₅: Real Estate is positively associated with the rate of inflation.*

## 2.6. Portfolios and Inflation:

The returns of a portfolio are largely dependent on the allocation of various assets available for investment. Different asset classes have different characteristics. Risks and returns associated with them are entirely different from each other. Formulating portfolios is no longer a piece of cake; a portfolio strategy has to be developed according to the goals of investment, tolerance of risk, and the time horizon of investment along with other factors. According to Adler and Biger (1975), considerably efficient alternative portfolios formulated can be transformed into an optimal risky portfolio. The combination of risky assets and risk-free assets is what makes an efficient optimal

portfolio. Investors can hedge their portfolios constantly and consistently against inflation.

Campbell and Viceira (2005) report that the riskiness of assets under analysis like T-bills, stocks, and bonds changes with time. Similarly, the correlations between these assets vary over time, and optimal asset allocation changes due to it. The VAR framework used in this study previously solely considered the term 'structure of risk' and no reference was given to inflation hedging. In recent times, Brière and Signori (2012) report that the optimal allocation of an investor drastically changes with the macroeconomic regimes. Ranging from a volatile to a more stable environment and from short to long investment horizons, the allocation of assets must be revised to protect the portfolio against inflation.

## 3. Research Methodology

### 3.1. Sample:

The empirical testing of the present study is based on the five most widely used asset classes in Pakistan: cash, gold, stocks, foreign currency, and real estate. The sample period is 11 years from 01/2005 to 12/2015, with no missing data for all assets under study. The 90-day Treasury bill rate represents cash. Stocks are represented by the KSE-100 index. The US dollar exchange rate is used as a foreign currency investment. Gold prices are taken from the international US dollar per ounce rate. The analysis begins with the use of the VAR model to capture the interdependencies among asset returns. The inflation protecting capabilities of the various asset classes are then determined by first examining the horizon-dependent correlations between nominal asset returns and the inflation rate. Further investigation into individual asset inflation protection involves estimating the LPM's of these assets with the average rate of inflation as the target return. The next step of the analysis includes the construction of a minimum semi-variance portfolio of these assets with a target real return of 0% which ensures protection against inflation.

### 3.2. VAR Analysis:

For the analysis of the multivariate time series, the Vector Auto-Regressive model is used. The VAR model structure is developed in a form such that a linear function is created in which each variable depends on its own past lags and the past lags of the other variables included in the model. The linear interdependencies among variables are captured by VAR models. For a set of n time series variables $y_t = (y_{1t}, y_{2t}, ..., y_{nt})'$, a VAR model of order p (VAR (p)) can be written as: $y_t = A_1 y_{t-1} + A_2 y_{t-2} + ... + A_p y_{t-p} + u_t$ where the *A*'s are coefficient matrices and $u_t = (u_{1t}, u_{2t}, ..., u_{nt})'$ is the vector of unobservable i.i.d. zero mean error terms.

### 3.3. Lower Partial Moments:

To measure if the asset falls below the inflation rate or not, LPMs are used. Lower Partial Moments (LPMs) is a concept first introduced by Bawa (1975) and Fishburn (1977). It is a measure to account for downside return deviations. The deviations negative to a set target outcome are taken into consideration to represent the risk associated with the specific variable. Generally, the LPM of order n is defined as

$$LPM_n(\tau) = \int_{-\infty}^{\tau}(\tau - r_i)^n f(r_i)dr_i \qquad (1)$$

where $\tau$ is the target rate, *ri* is the return of asset *i*, and f(*ri*) is the density function of the ith asset return. The order n of the LPM can be interpreted as a risk aversion parameter. The focus in this study is on three classes of LPMs: shortfall probability (n = 0), expected shortfall (n = 1), and semi-variance (n = 2).

### 3.4. Portfolio Choice:

A great amount of literature dealing with the hedging of inflation for portfolios as well as long-term asset allocation uses the mean-variance framework. In a mean-variance framework, the risk measure used is variance, which is to be minimized. Constructing a portfolio using downside risk measures is similar to a traditional Markowitz approach except that the variance matrix is replaced with a semi-variance matrix. The following portfolio choice problem is constructed:

$$min\ LPM_{2,p} = \sum_{i=1}^{5} w_i w_j \varphi_{ij} \qquad (2)$$

$$\sum_{i=1}^{5} w_i = 1 \qquad (3)$$

## 4. Results And Analysis

### 4.1. Descriptive Statistics:

The descriptive statistics of the monthly returns of asset classes are provided in Table 1 to give a summarized picture of the data. The annualized average returns, annualized volatility, minimum, maximum, skewness, kurtosis, and JB-test values are included in the descriptive statistics.

As compared to other asset classes, cash has the second-highest average returns of 10.51% with a maximum of 11.54% and a minimum of 0.345%. The highest returns are produced by stocks, with a value of 16.22% and a maximum and minimum of 20.22% and -44.87% respectively. Gold exhibits the third-highest average returns of 8.39% followed by 8.00% returns of real estate and 5.47% returns of currency. Gold has maximum returns of 13.03% and minimum returns of -19.09%.

Real estate has a maximum and minimum value of 31.02% and -31.62% respectively. Currency has 6.00% maximum returns and -6.80% minimum returns. Asset volatilities, however, do not follow the same pattern as returns. The greatest volatility is of real estate, with a value of 33.19%, while the least volatility is of cash at 0.64%. Stocks

exhibit the second-highest volatility of 26.29% followed by a 19.27% volatility of gold and a 4.64% volatility of the currency. The skewness of assets shows the asymmetry (non-normality) in returns' behaviors as none of the assets have a zero value of skewness. Real estate is the only asset that is positively skewed while cash, gold, stocks, and currency are negatively skewed. The value of Kurtosis for all assets is not 3, which again denotes that data is not normally distributed. All the assets exhibit the Kurtosis value to be greater than 3 which shows that the distribution of data is peaked (leptokurtic) as compared to the normal. The results of the Jarque-Bera test indicate that returns do not follow a normal distribution as all assets have significant values for the Jarque-Bera greater than zero (for normal distribution, the JB-test value should be equal to zero). The null hypothesis of normality is rejected at a 1% significance level for real estate, at a 5% significance level for gold, and at a 0.1% significance level for stocks and currency. The JB-test value for cash is insignificant.

Table 1: Descriptive Statistics

| Assets | Ave Ret. % | Vol. % | Min. % | Max. % | Skew. | Kurt. | JB-test | |
|---|---|---|---|---|---|---|---|---|
| Cash | 10.51 | 0.64 | 0.345 | 11.54 | -0.145 | 2.323 | 2.981 | |
| Gold | 8.39 | 19.27 | -19.09 | 13.03 | -0.4258 | 3.789 | 7.422* | |
| Stocks | 16.22 | 26.29 | -44.87 | 20.22 | -1.9708 | 12.718 | 604.89*** | |
| Real estate | 8.00 | 33.19 | -31.62 | 31.02 | 0.0049 | 4.538 | 13.01** | |
| Currency | 5.47 | 4.64 | -6.8 | 6.00 | -0.1938 | 11.765 | 423.35*** | |

## 4.2. Vector Auto-Regression Model:

Table 2 presented below shows the VAR results. Table 2(a) represents the coefficients of the lagged variables while Table 2(b) shows the covariance structure of the residuals.

Table 2(a): VAR Estimation Results

| | D(RCA) | D(RGO) | D(RST) | D(RER) | D(RRE) | D(IN) |
|---|---|---|---|---|---|---|
| D(RCA(-1)) | 0.153429 | 16.34409 | -31.05650 | 0.470672 | 24.60130 | 0.060087 |
| | (0.08599) | (18.1884) | (22.8743) | (3.68853) | (31.9846) | (0.24529) |
| D(RGO(-1)) | 0.000111 | -0.560439 | -0.246666 | 0.023067 | 0.083511 | 0.000194 |
| | (0.00036) | (0.07692) | (0.09674) | (0.01560) | (0.13527) | (0.00104) |
| D(RST(-1)) | -0.000545 | -0.028663 | -0.362167 | -0.008430 | -0.059447 | 0.000903 |
| | (0.00030) | (0.06359) | (0.07997) | (0.01290) | (0.11183) | (0.00086) |
| D(RER(-1)) | 0.000206 | -0.168326 | 0.723638 | -0.411284 | -0.023458 | -0.001862 |
| | (0.00204) | (0.43061) | (0.54155) | (0.08733) | (0.75723) | (0.00581) |
| D(RRE(-1)) | -0.000310 | 0.010606 | 0.060920 | 0.001165 | -0.614505 | -0.000322 |
| | (0.00019) | (0.04087) | (0.05140) | (0.00829) | (0.07186) | (0.00055) |

| D(IN(-1)) | 0.098278 | -5.507545 | -4.322522 | 0.901858 | 0.154527 | 0.274602 |
|---|---|---|---|---|---|---|
| | (0.03110) | (6.57869) | (8.27359) | (1.33413) | (11.5688) | (0.08872) |
| R-squared | 14.9 | 32.2 | 26.1 | 19.5 | 39 | 8.5 |
| F-statistic | 3.590541 | 9.724523 | 7.235906 | 4.969575 | 13.12464 | 1.913619 |

*Coefficient estimates of VAR with standard errors in parenthesis*

The prediction equation of cash is shown in the first column of Table 2(a). The predictability of cash is not very good as $R^2$ is 14.9%. Results show that the own lag has a positive effect on T-bills. The only negative coefficients for the cash equation are stocks and real estate. The second column of Table 2(a) represents the gold equation with an $R^2$ of 32.2%. The own lag of gold has a negative coefficient and cash is shown to have a noticeable influence on gold. The stock equation is shown in the third column, exhibiting an $R^2$ of 26.1%. Positive coefficients for the stock equation are foreign currency and real estate. Just like gold, stocks are negatively influenced by their lag. The fourth column of Table 2(a) shows the prediction equation for foreign currency with an $R^2$ of 19.5%. A negative coefficient is observed for its lag. The fifth column of Table 2(a) indicates the prediction equation for real estate with the highest value of $R^2$ at 39%. Cash has a notable positive influence on real estate. Real estate's lag also has a negative coefficient. The results also show that none of the coefficients from any equation is significant except for two; one is the coefficient of inflation for cash and second is the inflation's lag for inflation.

The covariance structure of residuals in Table 2(b) shows that unexpected inflation is negatively correlated to shocks to stocks while positively correlated with shocks to cash, gold, foreign currency, and real estate. The analysis shows that all other assets except stocks can be used as a hedge against inflation.

## 4.3. The Residuals Covariance Matrix

Table 2(b): The Residuals Covariance Matrix

| | $r_{ca}$ | $r_{go}$ | $r_{st}$ | $r_{er}$ | $r_{re}$ | infl |
|---|---|---|---|---|---|---|
| $r_{ca}$ | 0.0000141% | 0.000151% | -0.0003% | -0.00012% | -0.00011% | 0.0000024% |
| $r_{go}$ | - | 0.5097% | -0.0733% | -0.0143% | -0.103% | 0.000226% |
| $r_{st}$ | - | - | 0.8062% | -0.016% | -0.02% | -0.000181% |
| $r_{er}$ | - | - | - | 0.021% | 0.00605% | 0.000213% |
| $r_{re}$ | - | - | - | - | 1.5762% | 0.00144% |
| infl | - | - | - | - | - | 0.0000927% |

## 4.4. Correlation between Assets and Inflation

The inflation-hedging abilities of the individual assets are examined by analyzing the correlations between an individual asset's nominal returns and inflation depending on the investment horizon. The extent to which two variables are in a linear relationship with each other is unveiled by the Correlation Analysis. Correlations among inflation and individual assets are important to reveal assets in a linear relationship with inflation. The results of the correlation analysis are reported in Table 3.

Table 3: Correlation between Assets and Inflation

| years | cash | gold | Stock | currency | real estate |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| 1 | -0.58 | -0.29 | -0.46 | -0.03 | 0.20 |
| 2 | -0.57 | -0.30 | -0.01 | 0.00 | 0.07 |
| 5 | 0.68 | -0.17 | -0.37 | 0.54 | -0.02 |
| 11 | 0.68 | 0.05 | -0.25 | 0.31 | -0.02 |

The correlation between cash and inflation is negative in the short term and becomes positive for a long-term horizon. The correlation for a 1-year horizon is -58% and -57% for a 2-year horizon. For a 5-year and 11-year investment horizon, the value of correlation increases to 68%. Cash shows the highest value of correlation among all other asset classes. On the whole, a generally increasing trend is noticed in the cash-inflation correlation. The correlation between gold and inflation is negative for horizons except the last. Again, an overall increasing trend is observed as the value of correlation is -29% for a 1-year horizon, -30% for a 2-year horizon, -17% for a 5-year horizon, and lastly 5% for an 11-year horizon.

The correlations between stocks and inflation are negative for all investment horizons. The stock-inflation relationship is negative for both short-term and long-term investment horizons. For a 1-year horizon, it shows a value of -46%. In a 2-year horizon, it increases to a mere -1% which is again reduced in a 5-year horizon to a value of -37%. For an 11-year horizon, it shows a value of -25%. The correlation between foreign currency and inflation starts with a -3% for a 1-year horizon which then shifts to no correlation for a 2-year horizon. For a 5-year horizon, a tremendous 54% correlation is observed which later decreases to 31% for an 11-year horizon. The foreign currency relationship with inflation is negative to none in the short term while positive for long term horizons. For a 1-year horizon, real estate shows a value of 20%, which decreases to 7% in a 2-year horizon. For a 5-year and 11-year horizon, the value of correlation remains at -2%. According to the correlation analysis, gold, stocks and foreign currency show poor inflation hedging abilities for all investment horizons. Cash is by far the best choice for hedging inflation as per a 5-year and 11-year horizon, exhibiting the highest positive values. Real estate, on the other hand, is a somewhat fair option for short term hedging. Foreign currency has a good value of correlation for a medium horizon but is not as good as cash. All other asset classes fail to provide a hedge against inflation.

## 4.5. LPM with the Inflation Rate as Target Return

Further analyzing the potential of assets to hedge inflation, the LPMs of cash, gold, stock, foreign currency, and real estate are considered. The risk that an asset will fall below the inflation rate is measured by exploring the LPM of order 0, 1, and 2 for different investment horizons. The LPM of order 0 shows the shortfall probability of the asset. The LPMs of orders 1 and 2 reveal the expected shortfall and semi-variance of the asset respectively. The following table shows the LPMs of order 0, 1, and 2 for the assets with different investment horizons.

Table 4: LPM with the Inflation Rate as Target Return

|  | $LPM_0$ | $LPM_1$ | $LPM_2$ | $LPM_0$ | $LPM_1$ | $LPM_2$ |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
|  | 1-year Investment Horizon | | | 2-year Investment Horizon | | |
| cash | 100.00% | 0.19% | 0.00% | 80.00% | 0.08% | 0.00% |
| gold | 41.67% | 1.35% | 0.05% | 40.00% | 1.43% | 0.06% |
| stock | 41.67% | 2.15% | 0.15% | 44.00% | 2.47% | 0.21% |
| currency | 100.00% | 0.70% | 0.01% | 100.00% | 0.61% | 0.00% |
| real estate | 58.33% | 6.52% | 0.97% | 64.00% | 5.40% | 0.85% |
|  | 5-year Investment Horizon | | | 11-year Investment Horizon | | |
|  |  |  |  |  |  |  |
| cash | 73.33% | 0.20% | 0.00% | 60.61% | 0.09% | 0.00% |
| gold | 43.33% | 1.96% | 0.16% | 48.48% | 2.24% | 0.18% |
| stock | 50.00% | 3.42% | 0.66% | 42.42% | 2.42% | 0.36% |
| currency | 81.67% | 0.75% | 0.01% | 74.24% | 0.69% | 0.01% |
| real estate | 65.00% | 5.12% | 0.74% | 53.03% | 3.48% | 0.46% |

For horizon 1, which is a 1- year investment period, the shortfall probabilities for cash, gold, stock, foreign currency, and real estate are 100%, 41.67%, 41.67%, 100.00%, and 58.33% respectively. For a 2-year horizon, the shortfall probability for cash decreases to 80%. A slight decrease in the shortfall probability of gold is also seen, which now stands at 40%. For stocks, shortfall probability slightly increases to 44%. Foreign currency's shortfall probability is the same as that in horizon 1, that being 100%, while the probability for real estate for this period increases to 64%. For a 5-year horizon, the shortfall probability of cash increases to 73.33, and the value of shortfall probability for gold increases minimally to 43.33%. For stocks, shortfall probability increases to a value of 50%, whereas it incurs a decrease reaching a value of 81.67% for foreign currency. Again, for real estate, the shortfall probability has a minor increase to 65%. For an 11-year horizon, cash has a decline in its shortfall probability, reaching a value of 60.61% while the probability for gold increases to 48.48% and that for stock to 42.42%. Foreign currency keeps its declining trend, making a value of 74.24%. A decrease in shortfall probability was also observed for real estate, reaching a value of 53.03%.

The expected shortfall for cash in horizon 1 is 0.19%, decreasing to 0.08% for horizon 2, increasing to 0.20% for horizon 5 and again down reaching a value of 0.09% for horizon 11. For gold, the expected shortfall in horizon 1 is 1.35%, increasing to 1.43% for horizon 2 and further to 1.96% for horizon 5, ultimately reaching a value of 2.24% for horizon 11. The expected shortfall for horizon 1 of stocks is 2.15%, increasing to 2.47% for horizon 2 and further to 3.42% for horizon 5 before decreasing to a value of 2.42% for horizon 11.

For foreign currency, the expected shortfall is 0.70% for a 1-year horizon, decreasing to 0.61% for a 2-year horizon before increasing to 0.75% for a 5-year horizon and finally reaching a value of 0.69% for an 11-year horizon. Real estate shows a 6.52% value of expected shortfall for horizon 1, 5.40% for horizon 2, 5.12% for horizon 5, and finally a value of 3.48%.

The semi-variance of cash for a 1-year, 2-year, 5-year, and 11-year horizon stills at 0%. For gold, the semi-variance for horizon 1 is 0.05%, slightly increasing to 0.06% for horizon 2 and further to 0.16% and 0.18% for horizon 5 and 11 respectively. For horizon 1 the semi-variance for stocks is 0.15%, 0.21% for horizon 2, 0.66% for horizon 5, and decreases to 0.36% for horizon 11. The semi-variance of foreign currency is the same for all horizons, fixed at 0.01% except for in the case of horizon 2 where it is 0%. The semi-variance for real estate shows a decreasing trend from horizon 1 to 11, with values of 0.97%, 0.85%, 0.74% and 0.46% for horizon 1, 2, 5 and 11 respectively.

Considering expected shortfall and semi-variance, cash exhibits the lowest values for all investment horizons. If only the shortfall probabilities are taken into consideration, for a 1-year horizon, gold and stocks share the same spot by showing the lowest shortfall probabilities. For horizons 2 and 5, gold has the lowest shortfall probability whereas, for an 11-year investment horizon, stocks take its place.

Comparing the results of the correlation analysis with the LPM analysis, quite different results are obtained. According to the correlation analysis, cash is good enough to provide a hedge against inflation for long-term investment horizons, and foreign currency could be a good inflation hedge for medium horizons. For short-term investment horizons, real estate shows the greatest correlation with inflation. But the LPM analysis has uncovered the abilities of some other assets to provide a hedge against inflation, like gold and stocks. Thus, it is concluded that a high correlation does not mean a minimum LPM will be yielded as well.

Following Briere and Signori (2012), the downside analysis of inflation hedging capabilities of the individual assets will be concluded in terms of shortfall probabilities as it is providing more contrasting results. It shows that gold and stocks prove to be good inflation hedges for short-term investments. The hedging capabilities of gold are exceeded to medium term investments but for longer horizons, stocks prove to be a more effective hedge.

### 4.6. Minimum Semi-Variance Portfolio with target real return of 0%

Table 5 shows the portfolios constructed for various investment horizons which ensure minimum semi-variance and a target real return of 0%. Portfolios are constructed maintaining a minimum semi-variance as well as achieving a target real return of 0% to hedge inflation.

Table 5(a): Minimum Semi-Variance Portfolio with target real return of 0%

| Investment Horizon (years) | 1 | 2 | 5 | 11 |
|---|---|---|---|---|
| Cash | 89.19% | 92.90% | 75.22% | 97.67% |
| Gold | 6.28% | 4.98% | 24.78% | 0.00% |
| Stocks | 4.54% | 2.12% | 0.00% | 2.33% |
| Currency | 0.00% | 0.00% | 0.00% | 0.00% |
| Real estate | 0.00% | 0.00% | 0.00% | 0.00% |
| Target Inflation rate | 0.7569% | 0.7083% | 0.9779% | 0.8460% |
| Portfolio Return | 0.7569% | 0.7083% | 0.9779% | 0.8460% |
| Portfolio Risk | 0.0023% | 0.0010% | 0.0241% | 0.0007% |

Table 5(a) shows the allocation of the assets for achieving the target real return of 0%. It can be seen that for each investment horizon, different percentages of the assets are presented. It can be seen by taking a holistic view of results that the maximum amount of portfolio is invested in cash. For a 1-year portfolio, cash is at 89.19% and for a 2-year portfolio, it further increases to 92.9%. Real estate and foreign currency are not part of any portfolio. For a 5-year investment portfolio, gold is taking 24.78% of the portfolio and the rest is allocated to cash again. For an 11-year horizon, cash reaches a maximum percentage of 97.67% to achieve the target real return of 0%.

The fact that all the portfolios have cash as the major or only asset is due to the reason that it exhibits the least semi-variance as compared to all other assets i.e. 0%. And as portfolios are constructed to minimize semi-variance, cash seems to be the better choice as it decreases the semi-variance and also achieves the target real return of 0%. But that's not the ultimate answer. This asset allocation can be changed merely by removing cash from the mix and seeing what other assets can bring to the portfolio, which is very evident from the LPM analysis of the individual assets.

Table 5(b) reports the asset allocation in the absence of cash to ensure the inflation hedging of the portfolio. It is completely evident now how assets can be used strategically to create inflation hedged portfolios. Hence, it is shown as a result of the analysis that hedging inflation is surely possible using an optimal asset mix. This optimal asset mix will be different for each investment horizon depending on the investment horizon and motive.

## 4.7. Minimum Semi-Variance Portfolio with target real return of 1%, 2% & 3%

Taking the analysis, a step further for an investor who is more performance-oriented, target real returns are increased from 0%. Three different scenarios are developed for a target real return of 1%, 2%, and 3%. The portfolio compositions for these three targets are presented in Table 6.

Table 5(b): Minimum Semi-Variance Portfolio with target real return of 0% excluding cash

| Investment Horizon (years) | 1 | 2 | 5 | 11 |
|---|---|---|---|---|
| Gold | 22.29% | 27.91% | 41.63% | 28.06% |
| Stocks | 11.62% | 10.58% | 1.83% | 39.17% |
| Currency | 66.09% | 61.51% | 56.54% | 22.52% |
| Real estate | 0.00% | 0.00% | 0.00% | 10.25% |
| Target Inflation rate | 0.7569% | 0.7083% | 0.9779% | 0.8460% |
| Portfolio Return | 0.7569% | 0.7083% | 0.9779% | 0.8460% |
| Portfolio Risk | 0.0171% | 0.02006% | 0.0724% | 0.1705% |

Table 6(a): Minimum Semi-Variance Portfolio with a target real return of 1%

| Investment Horizon (years) | 1 | 2 | 5 | 11 |
|---|---|---|---|---|
| Cash | 31.57% | 0.00% | 0.00% | 0.00% |
| Gold | 39.39% | 64.63% | 100.00% | 0.00% |
| Stocks | 29.04% | 35.37% | 0.00% | 100.00% |
| Currency | 0.00% | 0.00% | 0.00% | 0.00% |
| Real estate | 0.00% | 0.00% | 0.00% | 0.00% |
| Target Inflation rate | 1.7569% | 1.7083% | 1.9779% | 1.8460% |
| Portfolio Return | 1.7569% | 1.7083% | 1.5249% | 1.2528% |
| Portfolio Risk | 0.0839% | 0.1456% | 0.3909% | 0.8698% |

Table 6(b): Minimum Semi-Variance Portfolio with target real return of 2%

| Investment Horizon (years) | 1 | 2 | 5 | 11 |
|---|---|---|---|---|
| Cash | 0.00% | 0.00% | 0.00% | 0.00% |
| Gold | 37.16% | 0.00% | 100.00% | 0.00% |
| Stocks | 62.84% | 100.00% | 0.00% | 100.00% |
| Currency | 0.00% | 0.00% | 0.00% | 0.00% |
| Real estate | 0.00% | 0.00% | 0.00% | 0.00% |
| Target Inflation rate | 2.7569% | 2.7083% | 2.9779% | 2.8460% |
| Portfolio Return | 2.7569% | 1.9963% | 1.5249% | 1.2528% |
| Portfolio Risk | 0.3089% | 0.5909% | 0.3909% | 0.8698% |

Table 6(c): Minimum Semi-Variance Portfolio with target real return of 3%

| Investment Horizon (years) | 1 | 2 | 5 | 11 |
|---|---|---|---|---|
| Cash | 0.00% | 0.00% | 0.00% | 0.00% |
| Gold | 0.00% | 0.00% | 100.00% | 0.00% |
| Stocks | 100.00% | 100.00% | 0.00% | 100.00% |
| Currency | 0.00% | 0.00% | 0.00% | 0.00% |
| Real estate | 0.00% | 0.00% | 0.00% | 0.00% |
| Target Inflation rate | 3.7569% | 3.7083% | 3.9779% | 3.8460% |
| Portfolio Return | 3.5810% | 1.9963% | 1.5249% | 1.2528% |
| Portfolio Risk | 0.7319% | 0.5909% | 0.3909% | 0.8698% |

Now for investors who are more performance-oriented, target real returns are increased to 1%, 2%, and 3%. An analysis is carried out to see if these performance-oriented goals can be achieved. For a target real return of 1%, the allocation of the assets is greatly changed. For horizon 1, cash is drastically reduced to 31.57%, gold is allotted 39.39% and stocks take 29.04% of the portfolio. For horizon 2, cash is down to 0% while gold and stocks are raised to 64.63% and 35.37% respectively. Achieving the target real return of 1% is only possible for a 1-year and 2-year investment horizon. For 5-year and 11-year investment horizons, maximum returns can be achieved by investing in gold and stocks respectively.

For a target real return of 2% in horizon 1, the percentage of cash is down to 0% while gold and stocks tale 37.16% and 62.89% of the portfolio portion respectively. Achieving the target real return of 2% is only possible for horizon 1 as per results. For the rest of the horizons, the shining assets are gold and stocks, with stocks covering most investment horizons. For a target real return of 3%, no possible combination is achieved. Maximum returns can be achieved by investing in stocks for short-term as well as long-term investment periods.

## 5. Conclusion

The present study empirically explores the inflation hedging capabilities of the most widely used assets in Pakistan. The study also intends to construct optimal portfolios that are protected from the coercive effects of inflation by employing returns of assets such as cash, gold, stocks, foreign currency, and real estate from 2005 to 2015. The inflation protecting abilities of the assets are analyzed in the first step by capturing their correlation and lower partial moments, and then the portfolios are constructed for several investment horizons which provide a cushion against inflation. Unlike other studies dealing with this particular topic, the present study also employs the downside risk measure to explore individual inflation hedging abilities as well as to construct the portfolios. Inflation hedging capabilities of the individual assets are checked through correlation and lower partial moments. It is believed that the traditional approach of considering the correlations for assessing the inflation-asset relationship can be deceptive. The results of correlation, when compared with the LPM analysis, paint a very different picture of the inflation hedging capabilities. The results of the correlation analysis conclude that real estate is the best inflation hedge for short-term investment horizons while cash is good for medium to longer investment horizons. According to the correlation analysis, gold, stocks and foreign currency are no good for inflation hedges. Foreign currency exhibits some inflation hedging abilities for a 5-year investment horizon but it is not better than cash. Using lower partial moments with inflation as a target rate, it is concluded that considering shortfall probabilities of the assets, gold and stock seem to be a good option for short-term investments. Gold is prominent for medium-term investment horizons but stocks take the place in longer horizons. (Fama, 1976; Hoevennars et al., 2008; Ibrahim & Agbaje, 2013; Nasir & Shah, 2012; Luintel & Paudyal, 2006; Chua, Sick & Woodward, 1990; Ghosh et al., 2004; Rubbaniy, Lee & Verschoor, 2011).

The inflation hedging properties of assets change with the investment horizon and thus the optimal asset allocation, which also ensures protection from inflation, is affected. The minimum semi-variance portfolios constructed, which are inflation-protected, are with a target real return of 0% and then for some optimistic investors who desire to achieve target real returns of 1%, 2%, and 3%. The results of the analysis show that inflation-protected portfolios can be constructed using an optimal asset mix. Inflation hedged portfolios can be constructed if investors know how to strategically create an optimal asset mix (Fleischmann, Rehring, and Sebastian, 2010; Brière and Signori, 2012). As per the current analysis, cash proves to be a better inflation hedge along with gold for short-term investments. For longer horizons, however, the inflation hedging abilities are tilted towards stocks. Other portfolios are also constructed, which are for more performance-oriented investors. It is found that achieving a target real return of 1% and 2% is possible only for the short-term but maintaining a 3% return is not possible even so. In the context of the above discussion, this study suggests that investors can strategically create optimal portfolios that are hedged against inflation.

## AUTHOR CONTRIBUTION

Aftab Hussain Tabassam; Developed the theory and verified the analytical methods.
Arshad Ali Bhatti; Contributed to the design and implementation of the research, to the analysis of the results.
Zafar Iqbal: Presented the idea of research study, performed the analytic calculations, and performed the numerical simulations.
Amna Mushtaq; Wrote the manuscript with input from all other authors.

### DATA AVAILABILTY STATEMENT

The data analyzed during the study is openly available for all. The authors did not have any special access that others do not have. All raw data of KSE-100[5] Index, currency rate[6], gold prices[7], treasury bill[8] and real estate[9] is available without any restriction

### CONFLICT OF INTEREST

No conflict of interest

### FUNDING

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[5] https://dps.psx.com.pk/historical

[6] https://www.investing.com/currencies/usd-pkr

[7] https://www.investing.com/commodities/gold

[8] https://www.investing.com/rates-bonds/pakistan-government-bonds?maturity_from=60&maturity_to=60

[9] https://www.zameen.com/

# REFERENCES

Adler, G., Lama, R., & Medina, J. P. (2019). Foreign exchange intervention and inflation targeting: The role of credibility. *Journal of Economic Dynamics and Control, 106*, 103716.

Ahmed, R., & Mustafa, K. (2012). Real Stock Returns and Inflation in Pakistan. *Research Journal of Finance and Accounting*, *3*(6), 97-102.

Akmal, M. S. (2007). Stock returns and inflation: An ARDL econometric investigation utilizing Pakistani data. *Pakistan economic and social review*, 89-105.

Apergis, N., & Eleftheriou, S. (2002). Interest rates, inflation, and stock prices: the case of the Athens Stock Exchange. *Journal of Policy Modeling*,*24*(3), 231-236.

Bahram, A., Arjun, C., & Kambiz, R. (2004). REIT investments and hedging against inflation. *Journal of Real Estate Portfolio Management*, *10*(2), 97-112.

Barnes, M. L. (1999). Inflation and returns revisited: a TAR approach. *Journal of Multinational Financial Management*, *9*(3), 233-245.

Barnett, W. A., Wang, C., Wang, X., & Wu, L. (2019). What inflation measure should a currency union target? *Journal of Macroeconomics, 59*, 123-139.

Beckmann, J., & Czudaj, R. (2013). Gold as an inflation hedge in a time-varying coefficient framework. *The North American Journal of Economics and Finance*, *24*, 208-222.

Black, F. (1995). Universal hedging: optimizing currency risk and reward in international equity portfolios. *Financial Analysts Journal*, *51*(1), 161-167.

Beetsma, R. M., Chen, D., & van Wijnbergen, S. (2019). Unhedgeable Inflation Risk within Pension Schemes.

Bodie, Z. (1976). Common stocks as a hedge against inflation. *The Journal of Finance*, *31*(2), 459-470.

Bond, M., & Seiler, M. (1998). Real estate returns and inflation: an added variable approach. *Journal of Real Estate Research*, *15*(3), 327-338.

Brière, M., & Signori, O. (2012). Inflation-hedging portfolios: Economic regimes matter. *Journal of Portfolio Management*, *38*(4), 43.

Campbell, J. Y., & Viceira, L. M. (2005). The term structure of the risk-return trade-off. *Financial Analysts Journal*, *61*(1), 34-44.

Chua, J. H., Sick, G., & Woodward, R. S. (1990). Diversifying with Gold Stocks. *Financial Analysts Journal*, *46*(4), 76.

Dempster, N., & Artigas, J. C. (2010). Gold: inflation hedge and long-term strategic asset. *The Journal of Wealth Management*, *13*(2), 69.

Erdem, C., Arslan, C. K., & Sema Erdem, M. (2005). Effects of macroeconomic variables on Istanbul stock exchange indexes. *Applied Financial Economics*, *15*(14), 987-994.

Fama, E. F. (1975). Short-term interest rates as predictors of inflation. *The American Economic Review*, *65*(3), 269-282.

Fisher, J. D., & Webb, R. B. (1992). Current issues in the analysis of commercial real estate. *Real Estate Economics*, *20*(2), 211-227.

Fleischmann, B., Rehring, C., & Sebastian, S. (2010). Inflation-Hedging, Asset Allocation, and the Investment Horizon. *Available at SSRN 1663590*.

Froot, K. A., & Thaler, R. H. (1990). Anomalies: foreign exchange. *The Journal of Economic Perspectives*, *4*(3), 179-192.

Ghosh, D., Levin, E. J., Macmillan, P., & Wright, R. E. (2004). Gold as an inflation hedge?. *Studies in Economics and Finance*, *22*(1), 1-25.

Hartzell, D., Hekman, J. S., & Miles, M. E. (1987). Real estate returns and inflation. *Real Estate Economics*, *15*(1), 617-637.

Hoesli, M. (1994). Real estate as a hedge against inflation: learning from the Swiss case. *Journal of Property Valuation and Investment*, *12*(3), 51-59.

Hoesli, M., MacGregor, B. D., Matysiak, G., & Nanthakumaran, N. (1997). The short-term inflation-hedging characteristics of UK real estate. *The Journal of Real Estate Finance and Economics*, *15*(1), 27-57.

Hondroyiannis, G., & Papapetrou, E. (2006). Stock returns and inflation in Greece: A Markov switching approach. *Review of Financial Economics*,*15*(1), 76-94.

Huang, H., & Hudson-Wilson, S. (2007). Private commercial real estate equity returns and inflation. *Journal of portfolio management*, 63.

Ibrahim, T. M., & Agbaje, O. M. (2013). The relationship between stock return and inflation in Nigeria. *European Scientific Journal*, *9*(4).

Jaffe, J. F. (1989). Gold and gold stocks as investments for institutional portfolios. *Financial Analysts Journal*, *45*(2), 53-59.

Jorion, P. (1989). Asset allocation with hedged and unhedged foreign stocks and bonds. The Journal of Portfolio Management, 15(4), 49-54.

Kantor, L. G. (1983). Inflation uncertainty and inflation hedging. *Economic Review*, (Sep), 24-37.

Lee, K. N. H. (2012). Inflation and Residential Property Markets: A Bounds Testing Approach. International Journal of Trade, Economics and Finance, 3(3), 183.

Lin Lee, C. (2014). The inflation-hedging characteristics of Malaysian residential property. *International Journal of Housing Markets and Analysis*,*7*(1), 61-75.

Maghyereh, A. (2006). The long-run relationship between stock returns and inflation in developing countries: further evidence from a nonparametric cointegration test. *Applied Financial Economics Letters*, *2*(4), 265-273.

Markowitz, H. (1952). Portfolio selection. *The journal of finance*, *7*(1), 77-91.

Matysiak, G., Hoesli, M., MacGregor, B., & Nanthakumaran, N. (1996). The long-term inflation-hedging characteristics of UK commercial property.*Journal of Property Finance*, *7*(1), 50-61.

Morvillier, F. (2020). Do currency undervaluations affect the impact of inflation on growth? *Economic Modelling, 84*, 275-292.

Mustafa, K., & Nishat, M. (2008, August). Do Asset Returns Hedge Against Inflation in Pakistan. In *21st Australasian Finance and Banking Conference*.

Nelson, C. R. (1976). Inflation and rates of return on common stocks. *The journal of Finance*, *31*(2), 471-483.

Newell, G. (1996). The inflation-hedging characteristics of Australian commercial property: 1984-1995. *Journal of Property Finance*, *7*(1), 6-20.

Rehring, C. (2012). Real Estate in a Mixed-Asset Portfolio: The Role of the Investment Horizon. *Real Estate Economics*, *40*(1), 65-95.

Roache, S. K., & Attie, A. P. (2009). *Inflation hedging for long-term investors*(No. 9-90). International Monetary Fund.

Salisu, A. A., Ndako, U. B., & Akanni, L. O. (2019). New evidence for the inflation hedging potential of US stock returns. *Finance Research Letters*, 101384.

Shah, S. Z. A., Nasir, Z. M., & Naeem, M. (2012). Can common stocks provide hedge against inflation? Evidence from SAARC countries. *The Pakistan Development Review*, 435-447.

Shanmugam, K. R., & Misra, B. S. (2009). Stock returns-inflation relation in India, 1980-2004. *Applied Econometrics and International Development*, *9*(1), 187-98

Shahzad, S. J. H., Mensi, W., Hammoudeh, S., Sohail, A., & Al-Yahyaee, K. H. (2019). Does gold act as a hedge against different nuances of inflation? Evidence from Quantile-on-Quantile and causality-in-quantiles approaches. *Resources Policy, 62*, 602-615. .

Taderera, M., & Akinsomi, O. (2020). Is commercial real estate a good hedge against inflation? Evidence from South Africa. *Research in International Business and Finance, 51*, 101096.

Wydler, D. (1989). Swiss stocks, bonds, and inflation, 1926-1987. *The Journal of Portfolio Management*, *15*(2), 27-32.

Yongqiang, C., & Tien, S. (2004). Inflation hedging characteristics of the Chinese real estate market. *Journal of Real Estate Portfolio Management*,*10*(2), 145-154.

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