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FACTORS AFFECTING BROADBAND INTERNET ADOPTION BY PAKISTANI HOUSEHOLD CONSUMERS: A LOGIT MODEL

Amir Manzoor¹

Abstract

It may be argued that the general price-comparison based business model of Internet Service Providers may work in short term. However, to make such a model sustainable and to attract future customers a greater understanding of various factors affecting broadband internet adoption by consumers is essential. This paper examines a range of factors that possibly influence the Pakistani household consumers' behavioral intention to adopt broadband Internet. A survey research instrument examined the effect of six constructs (belonging to attitudinal, normative, control, and demographic categories) on consumers' behavioral intention to adopt broadband Internet. Results show that out of six constructs, five constructs significantly influenced the behavioral intention of consumers to adopt broadband Internet. Hedonic outcomes construct was found insignificant in influencing the behavioral intention of consumers to adopt broadband internet.

Keywords: Broadband Internet, Broadband Adoption, Factors, Logistic Regression Analysis, Survey, Pakistan.

JEL Classification: Z000

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Introduction

Since the advent of the Internet, broadband is arguably the most significant technology that provides users not only fast and always-on access to the Internet but also a host of productivity benefits with new content, applications and services (Sawyer et al., 2003; Van der Wee et al., 2014; Prieger, J. E., 2013; Australian Centre for Broadband Innovation, 2013). Broadband has been considered a vital element to enhance economic competitiveness and achieve sustained economic growth (Broadband Stakeholder Group, 2010; Crabtree, 2003; OECD Report, 2001; Oh, S. et al., 2003). Broadband adoption and use produce positive impacts on national economy and citizens lives, especially in the less-developed areas (Broadband Stakeholder Group, 2010; European Scrutiny Committee Report, 2006; Prieger, 2013).

In Pakistan, the continued efforts of Government of Pakistan and a highly competitive landscape of the Internet service industry have significantly enhanced affordable access to broadband by consumers (Manzoor, 2012). Since broadband inception in Pakistan, Pakistani ISPs most significant strategy to reach out new customers has been monthly pricing of broadband access (Manzoor, 2013).

The broadband subscription packages marketed by various ISPs in Pakistan focus on factors such as the Internet speed, limits on amount of downloaded data, monthly cost of broadband access (Manzoor, 2013). This price-focused strategy of ISPs to outperform the competition may be successful in short-term. Arguably, to achieve a long-term sustainable business model, ISPs need to gain a deeper understanding of factors other than the factors mentioned above. Such understanding will be helpful for ISPs in extending their future customer base. Therefore, the aim of this paper is to examine various attitudinal, normative, control, and demographic factors that can influence behavioral intention of Pakistani household consumers to
adopt broadband. This paper assumes that these factors affect behavioral intention of both current consumers of broadband and prospective consumers of broadband Internet.

There exist studies that examine the broadband diffusion and demand constraints on the broadband adoption (Anderson et al., 2002; Oh, S. et al., 2003; Stanton, 2004; Choudrie and Dwivedi, 2005; Choudrie and Dwivedi, 2004a). Conceptual models have been developed to understand the diffusion of broadband adoption (Choudrie and Dwivedi, 2004b; Dwivedi, 2005); Lin, and Wu, 2013a; Lin and Wu, 2013b; Kyriakidou et al., 2013) and research instruments (such as survey) have also been developed to test these models (Dwivedi et al., 2006).

After introduction, the paper will provide a discussion of constructs to be examined in Section 2. Research methodology adopted will be discussed in Section 3. Section 4 will provide the findings of the paper and Section 5 will provide discussion of these findings. A conclusion along with the contributions and limitations of this paper will be provided in Section 6. Section 6 will also provide a discussion of future research directions that can be drawn from this paper.

**Literature Review**

**Constructs Influencing Broadband Adoption**

The constructs examined in this paper were adopted and modified from various broadband adoption studies (Dwivedi, 2005; Dwivedi et al., 2006; Choudrie and Dwivedi, 2006). The conceptual model proposed in this paper assumes that there exist several independent variables (belonging to attitudinal, normative, control, and demographic categories) that can possibly influence the dependent variable of the model i.e. “broadband adoption”.

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Table 1 provides definition, category, and source of each construct.

**Table 1:**

*Definition of the constructs included in this paper*

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Category</th>
<th>Definitions of constructs</th>
<th>Source of Constructs</th>
</tr>
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<tr>
<td>Utilitarian Outcomes (UO)</td>
<td>Attitudinal</td>
<td>Extent to which users perceive broadband use enhances the effectiveness of their typical daily activities (such as homework, work-related activities etc.)</td>
<td>(Venkatesh and Brown, 2001) (Brown and Venkatesh, 2005)</td>
</tr>
<tr>
<td>Social influences (SI)</td>
<td>Normative</td>
<td>Extent of perceived influence on user from his/her family/friends to subscribe and use broadband internet.</td>
<td>(Taylor and Todd, 1995) (Venkatesh and Brown, 2001)</td>
</tr>
<tr>
<td>Self-efficacy (SE)</td>
<td>Control</td>
<td>User skill level to operate broadband internet independently (or at his own)</td>
<td>(Dwivedi, 2005)</td>
</tr>
<tr>
<td>Facilitating Conditions Resources (FCR)</td>
<td>Control</td>
<td>The consumer's perceived feeling of being resourceful when he/she subscribe and use broadband internet</td>
<td>(Venkatesh and Brown, 2001)</td>
</tr>
<tr>
<td>Hedonic Outcomes (HO)</td>
<td>Attitudinal</td>
<td>The extent of perceived pleasure consumer drives from the use of broadband Internet (such as games, fun and entertainment).</td>
<td>(Venkatesh and Brown, 2001) (Brown and Venkatesh, 2005)</td>
</tr>
</tbody>
</table>

**Discussion and Justification of Constructs**

Utilitarian outcomes construct was proposed and validated by (Venkatesh and Brown, 2001) as a factor suitable for examining the adoption and subsequent use of technology by household consumer. (Broadband Stakeholder Group, 2010) suggests that broadband offers a more flexible lifestyle (e.g. by providing work at home opportunities, assisting children in their homework etc.). It is therefore expected that an increased perception of usefulness of broadband for activities of interest to consumers is likely to increase the future broadband adoption by household consumers.
Hedonic outcomes construct was proposed and validated by (Venkatesh and Brown, 2001) as a factor that influences personal computer (PC) adoption by household consumers. According to (Heijden, 2004), hedonic information systems encourage prolonged use by users. (Venkatesh and Brown, 2001) established the significance of entertainment in the decision making process of consumer to adopt a technology. By providing entrainment, a PC offers its users escape from reality and immerse in a new environment, a hedonic perspective (Foxall, 1992; Venkatesh and Brown, 2001). With the advent of the Internet, the entertainment capability of the Internet has significantly enhanced. This is so because PCs are now capable of providing a range of online entertainment opportunities. However, the extended entertainment capability of PC is severely hampered by the comparatively low speeds of early Internet access technologies such as dial-up. Broadband solved this speed problem by providing faster download speeds and streaming data capabilities thus creating more compelling and convenient environment for entertainment. (Lee et al., 2003; Lee and Choudrie 2002) suggested that PC Bang phenomenon was the most important factor behind faster broadband uptake in South Korea. Similarly, (Anderson et al., 2002) found that broadband users were more likely to use the Internet for entertainment and related activities as compared with their narrowband counterparts. Therefore, it is expected that user perception of broadband as a good medium of entertainment is likely to increase the broadband internet adoption by consumers.

Social influences construct was proposed and validated by (Venkatesh and Brown, 2001) and (Taylor and Todd, 1995) as a factor that influences forming of consumer perceptions of broadband adoption. This paper assumes a positive social influence, in the form of positive messages from consumer’s social networks, will likely increase the behavioral intention of consumer to adopt broadband.

Choudrie and Lee (2004) and Lee and Choudrie (2002) found that affordability of monthly cost of broadband internet access by the middle-income Korean households was one of the few significant factors that impacted increased broadband uptake in South Korea.
Factors Affecting Broadband Internet Adoption

Research

(Dwivedi et al., 2003) also found that high monthly cost of broadband was a major factor that inhibited broadband adoption by UK households. This paper, therefore, assumes that a perceived high cost of broadband access and perceived low resources will result in lower broadband adoption rates.

Use of broadband Internet is also dependent on the use of computer (PC) and the Internet. Therefore, it is expected that the requisite knowledge of PC and the Internet use combined with the ease or difficulty of use will likely impact the consumer broadband adoption. The “Ten Million Program” launched by South Korean government, in which PC and the Internet skills were provided to a large number of citizens, significantly boosted the internet adoption and added around 4 million new online users in country’s internet population (Choudrie and Lee, 2004; Lee and Choudrie 2002). This paper assumes that with higher level of basic PC and The Internet skills (the self-efficacy) the users will be more likely to adopt broadband.

Many models explain behavioral intention and technology adoption e.g. Decomposed Theory of Planned Behavior, Technology Acceptance Model, and Theory of Planned Behavior. The conceptual model of broadband adoption proposed in this paper is comparable to these models in the sense that many individual factors included in these models are part of the conceptual model of this. The aim is to investigate the collective impact of these factors on broadband adoption. The dependent variable of these models (i.e. broadband adoption) and structure of proposed model in this paper were similar.

Hypotheses

The following are the hypotheses of this paper.

H1: Utilitarian Outcomes (UO) significantly impact consumer’s behavioral intention to adopt broadband.

H2: Hedonic Outcomes (HO) significantly impact consumer’s behavioral intention to adopt broadband.
Research

Factors Affecting Broadband Internet Adoption

H3: Social Influence (SI) significantly impact consumer’s behavioral intention to adopt broadband.
H4: Self-Efficacy (SE) significantly impact consumer’s behavioral intention to adopt broadband.
H5: Facilitating Conditions Resources (FCR) significantly impact consumer’s behavioral intention to adopt broadband.
H6: Age significantly affects consumer’s behavioral intention to adopt broadband.
H7: The proposed conceptual model of broadband adoption provides an appropriate level of explanation of variance in the consumer’s behavioral intention to adopt broadband.

Research Methodology

This paper adopted a survey approach to examine various constructs related to behavioral intention of consumers to adopt broadband. A survey was considered an appropriate choice for primary data collection in an exploratory research, such as this paper (Choudrie and Dwivedi, 2005). This is because studies of broadband adoption in developing countries are fairly limited. The survey instrument and questions were adopted and modified from (Dwivedi, 2005; Dwivedi et al., 2006; Choudrie and Dwivedi, 2006). First a draft questionnaire was prepared. The draft questionnaire was administered on 100 respondents selected from the population of household broadband Internet users from Karachi. A total of 55 replies were received. Majority of respondents validated the survey content, reported no issues in understanding questions and took an average of 15 minutes to complete the survey. Based on the feedback received from the respondents who completed the survey, minor changes were made to the questionnaire and a final survey was developed. The draft survey was utilized to confirm reliability of survey items and reliability level of all constructs was found acceptable according to criteria of (Hinton et al., 2004) and Cronbach’s alpha varied between 0.879 and 0.911 for different constructs. The survey had two categories of questions. One category consisted of multiple-type questions that examined the
Factors Affecting Broadband Internet Adoption

The second category consisted of Likert scale questions regarding various constructs that examined the behavioral intention of consumers to adopt or not adopt broadband.

Survey was distributed both through emails as well as hard copy. The survey was distributed to the households in various parts of Pakistan. Snowball sampling technique (Dwivedi et al., 2007a; Dwivedi et al., 2007b) was used due the uncertainty involved in identifying current consumers of broadband internet and the access to these customers was nomadic. Initial respondents of the study identified from various parts of Pakistan and they belonged to various sectors such as academia, government, private sector etc. These initial respondents referred to their own friends/relatives/colleagues. This strategy progressively increased the sample size (Ooi et al., 2011; Dwivedi et al., 2007a) and, during the period of June-December of 2013, 800 total number of broadband users completed the survey.

Out of the 800 questionnaires received, 358 were found complete and usable reaching a response rate of 45 percent which was comparable to response rates achieved in previous studies on broadband internet adoption (Dwivedi et al., 2007a; Dwivedi et al., 2007b; Ooi et al., 2011; Mugeni et al., 2012).

Fowler (2002) suggests that analysis plan should be a prerequisite for determining the sample size. This paper used logistic regression analysis technique to analyze the data. (Stevens, 1996) suggests that a sample size of above 300 should be enough to perform such statistical analysis with rigor.

**Data analysis**

The dependent variable in this paper, the broadband adoption, was categorical in nature since it measured the behavioral intention of consumer to adopt broadband. This variable was represented by Yes (1 if consumer has broadband) and No (0 if consumer do not have
broadband. A linear probability model was not suitable for analysis in this case due to the fact that the probability values it predicts may go beyond 0,1 range. A logit model was more appropriate choice and it was therefore used to examine and estimate the factors that could possibly influence the consumers’ behavioral intention to adopt broadband internet (Greene, 1997).

**Findings**

Table 2 shows the breakdown of the Internet availability among the 358 respondents.

**Table 2:**

*Distribution of Respondents based internet use*

<table>
<thead>
<tr>
<th>Total Respondents</th>
<th>358</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents with internet access at home</td>
<td>308 (86%)</td>
</tr>
<tr>
<td>Respondents with no internet access at home</td>
<td>50 (14%)</td>
</tr>
<tr>
<td>Respondents with broadband internet</td>
<td>67% (207)</td>
</tr>
<tr>
<td>Respondents with narrowband internet</td>
<td>33% (101)</td>
</tr>
</tbody>
</table>

**Logistic Regression Analysis**

Table 3 shows the dependent and independent (predictor) variables used in the logistic regression analysis performed in this paper.

**Table 3:**

*Dependent and Predictor Variables*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Predictor variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>broadband adoption</td>
<td>Utilitarian Outcomes (UO), Social Influence, Facilitating Conditions Resources (FCR), Self-efficacy (SE), Hedonic Outcomes (HO), Age</td>
</tr>
</tbody>
</table>
The model analyzed 358 cases and the model was found significantly reliable ($\chi^2 = 101.453, p < .001$) (Table 4). The model was able to explain between 24.3 % and 33.2 % variation in consumer’s behavioral intention to adopt broadband (Table 5). The model successfully predicted 86.25% of broadband adopters and 61.53% of non-broadband adopters. Overall, the model was able to produce 75.2 % of predictions accurately (Table 6).

Table 4:
*Chi-square and Significance Statistics*

<table>
<thead>
<tr>
<th>Model</th>
<th>Chi-square</th>
<th>Df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>101.453</td>
<td>6</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 5:
*Omnibus Tests of Model Coefficients*

<table>
<thead>
<tr>
<th>Step</th>
<th>-2 Log likelihood</th>
<th>Cox &amp; Snell R Square</th>
<th>Nagelkerke R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>358.010(a)</td>
<td>0.243</td>
<td>0.332</td>
</tr>
</tbody>
</table>

Table 6:
*Model Summary*

<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted</th>
<th>Broadband Adoption</th>
<th>Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Broadband Adoption</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Broadband Adopters and Non Adopters</td>
<td>No</td>
<td>32</td>
<td>171</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td>75.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The model shows that out of six predictor variables, all variables (except hedonic outcomes variable) reliably predicted consumer’s behavioral intention to adopt broadband. The values of coefficients of various predictor variables show that each unit increase in utilitarian outcomes (UO) and Facilitating Conditions Resources (FCR) results in an associated increase in the odds of consumer’s behavioral intention to adopt broadband by a factor of 1.874 (B= 0.634) and 1.782 (B= 0.573) respectively (Table 7). Therefore, utilitarian outcome (or usefulness of broadband) has maximum part in explaining actual behavioral intention to adopt broadband. The three other significant factors in explaining actual behavioral intention to adopt broadband are Self-efficacy (B= 0.351), Age (B= -0.291), and SI (B= 0.265) respectively.

**Table 7:**

*Variables in the Equation*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Wald</th>
<th>Df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UO</td>
<td>0.634</td>
<td>16.212</td>
<td>1</td>
<td>0.000</td>
<td>1.874</td>
</tr>
<tr>
<td>FCR</td>
<td>0.573</td>
<td>24.124</td>
<td>1</td>
<td>0.000</td>
<td>1.782</td>
</tr>
<tr>
<td>SE</td>
<td>0.351</td>
<td>5.223</td>
<td>1</td>
<td>0.026</td>
<td>0.698</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.291</td>
<td>6.491</td>
<td>1</td>
<td>0.012</td>
<td>0.771</td>
</tr>
<tr>
<td>SI</td>
<td>0.265</td>
<td>8.561</td>
<td>1</td>
<td>0.004</td>
<td>0.791</td>
</tr>
<tr>
<td>HO</td>
<td>0.005</td>
<td>0.003</td>
<td>1</td>
<td>0.942</td>
<td>1.104</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.431</td>
<td>14.231</td>
<td>1</td>
<td>0.000</td>
<td>0.014</td>
</tr>
</tbody>
</table>

**Discussion**

The findings of the paper suggest that utilitarian outcomes, social influence, facilitating conditions resources and self-efficacy, and age are variables that directly affect behavioral intention of consumer’s intention to adopt broadband. These findings are in line
Factors Affecting Broadband Internet Adoption

with findings of (Venkatesh and Brown, 2001). However, the insignificance of hedonic outcomes as a predictor of consumer’s behavioral intention to adopt broadband is in contrast with findings of (Venkatesh and Brown, 2001). One possible explanation of this non-significance of hedonic outcomes construct could be the restrictions imposed by governments on freeloading (or online sharing) of proprietary entertainment content from the Internet (Anderson, 2000; Bhattacharjee et al., 2003; Cowen, 2004; Premkumar, 2003). Since the advent of high-speed the Internet, freeloading of digital entertainment content has become a major concern for governments and regulators across the globe (Anderson, 2000; Cowen, 2004). Mlčakova and Whitley (2004) found that regulations do affect human behavior of online file sharing using peer-to-peer applications. Such restrictions are considered necessary to safeguard the entertainment industry but at the same time they are likely to reduce likelihood of consumer intention to use broadband as an entertainment medium.

The conceptual model of broadband internet adoption presented in this paper performed well as compared with previous studies on broadband internet adoption. The adjusted $R^2$ for previous behavioral models varied between 0.32 (Davis et al., 1989) to 0.51 (Davis, 1989). The adjusted $R^2$ for the model presented in this paper was found to be 0.345. It shows that the model presented in this paper was able to explain an appropriate and comparable level of variance in behavioral intention. That means that predictor variables considered in the model of this paper are significant in understanding consumer’s behavioral intention to adopt broadband. Therefore, this study finds support for all the hypotheses presented in this paper are accepted.

Contributions to the Field

The findings of this paper generate many issues related to consumer’s broadband adoption. These issues are relevant to both the policy makers and ISPs and helpful to gain a deeper understanding of consumer’s broadband adoption. For example, facilitating conditions
resources have been found as the second most important factor that affects consumer’s behavioral intention to adopt broadband. This finding has significant implications for ISPs and policy makers. That means ISPs will need to shift their focus to customer-centric services and flexible pricing of broadband access in order to create a mass-market demand. This is an issue currently being emphasized in Pakistan (PTA, 2012). Policy makers need to come up with a strategy to provide affordable broadband access at alternative accessible places for low-income customer groups. This may help increase overall broadband adoption rate within Pakistani household consumers.

Significance of self-efficacy (SE) as a factor that affects consumer’s behavioral intention to adopt broadband Internet brings into focus few policy-related issues of broadband internet access such as the provision of PC and the Internet skills to the citizens of the country.

Significance of utilitarian outcomes (UO) as a factor that affects consumer’s behavioral intention to adopt broadband attests the need to provide more integrated content and applications that consumers could utilize for various purposes. A small number of consumers with high household income may not opt for broadband Internet use because of lack of appropriate compelling content. Therefore, ISPs also need to make this integrated content and applications apparent to not only the ordinary public but also to the wealthy individuals. ISPs can possibly do it by offering differential pricing plans and segmented broadband subscription packages according to the consumers’ income level and needs. These packages may assist consumers of both high and low-income groups in determining the visible benefits of broadband internet over narrowband. It would also give them additional reasons to adopt broadband internet.

Findings of this paper are helpful to provide a plausible explanation of slow uptake of broadband and to develop and
implement appropriate measures to increase broadband adoption in Pakistan. For example, this paper found a negative impact of age on consumer’s behavioral intention to adopt broadband. This implies that with increasing age people are less likely to adopt broadband. There can be many reasons for this including lack of resources (such as income), lack of PC and the Internet skills, lack of awareness of potential benefits of broadband, etc. This finding represents a significant challenge for policy makers to implement ways to bring people in older age groups into broadband population.

**Conclusions**

Six constructs (taken from attitudinal, normative, control, and demographic categories) were analyzed. All six constructs were expected to influence consumer’s behavioral intention to adopt broadband within Pakistani households. All, except hedonic outcomes construct, were found to have significant impact on consumer’s behavioral intention to adopt broadband. Quantitatively speaking, out of the five constructs that significantly influence consumers’ behavioral intention to adopt broadband, utilitarian outcomes (UO) explained the largest variance while social influences (SI) explained the smallest variance. This paper is one of the initial studies that are part of a larger effort to understand the consumers’ behavioral intentions for broadband adoption within Pakistani households.

**Limitations of Research and Future Research Extensions**

This paper provides one of the initial findings that explain the consumers’ behavioral intention for broadband adoption within Pakistani households. The findings are expected to change with increasing maturity of technology and consumers’ experience of its use. Since the research was conducted in a limited time frame, it was not possible to capture the impact of time on consumers’ broadband adoption behavior. A longitudinal research may have reinforced the findings of the paper by removing anomalies in results through
elimination of variables. This is a quantitative research and therefore limited in its ability to obtain an in-depth understanding of household broadband adoption that may have been achieved by a detailed qualitative research. The survey findings could have been strengthened by using detailed interviews with consumers. However, time and resource constraints didn’t allow a mixed-method research. A future research direction is to examine the findings of this paper for the applicability of the results across other developing countries. Doing so would require a cross-cultural approach to understand broadband adoption.
References


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Management in the IT-Driven Services (PICMET), 2013 Proceedings of PICMET ’13: (pp. 662–671).


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Broadband Survey Questionnaire

**UO**
UO1: Broadband can be useful to find educational materials and accessing library resources at home
UO2: Broadband can be useful for distance learning
UO3: Broadband can be helpful to perform work/job-related tasks at home
UO4: Broadband will help me communicate better via e-mail, chat, web cam
UO5: Broadband can help in performing personal and household activities, i.e. online shopping
UO6: Broadband can help in performing personal and household activities, i.e. information search
UO7: Broadband can be helpful to establish and operate a home business
UO8: Broadband can help children to do their homework
UO9: Subscribing to broadband is compatible with most aspects of my everyday life
UO10: Overall broadband will be useful to me and other members in the family

**SI**
SI1: TV and radio advertising encourages me to try broadband
SI2: Newspaper advertising encourages me to try broadband

**SE**
SE1: I would feel comfortable using the internet on my own
SE2: Learning to operate the internet is easy for me
SE3: I clearly understand how to use the internet

**FCR**
FCR1: My annual household income level is enough to afford subscribing to broadband
FCR2: It is not too costly to purchase a new computer or to upgrade my old computer
FCR3: It is not too costly for me to subscribe to broadband at its current subscription fee
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Research

FCR4: I would be able to subscribe to broadband if I wanted to.

HO

HO1: I will enjoy using broadband to listen to and download music
HO2: I will enjoy using broadband to watch to and download movies
HO3: I will enjoy using broadband to play online games
HO4: I will enjoy using broadband to play online gambling/casino
EMPIRICAL ASSESSMENT OF THE IMPACT OF MICROFINANCE ON QUALITY OF LIFE

Syed Imtiaz Ali¹, Arshad Ali² and Fazli Subhan³

Abstract
This study examines the impact of microfinance institutions, operating in Malakand Division Pakistan, on quality of life of the poor population of the region. The principle purpose of the study is to examine the effects of microcredit on business development and income level of the clients. Data for the study was collected through a personally administered questionnaire. Quality of Life Index was calculated by taking into account several variables linked to increase in income level. Multiple regressions were applied to find the relationship between quality of life and microfinance services. The results showed that the age of the respondents, their marital status, education level, increase in income, increase in expenditures on food and clothing, the number of times they received microcredit, and business processes improvement made after obtaining microfinance were found to have a statistically significant relationship with the quality of life.

Keywords: Micro-Finance, Microfinance Institution, Survey, Impact, Quality of Life, Malakand.

JEL Classification: G 210

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Introduction

Over the last few decades microfinance gained unprecedented popularity as a poverty alleviation strategy among practitioners, academics and policy makers. It is considered as a powerful strategy for poverty alleviation, income distribution and for social and economic development (Mahjabeen, 2008), and its operations are not limited to the developing countries but it is also in practice in advanced countries of the world. Literature on the impact assessment of microfinance reveals that microfinance positively influence income, expenditures, health, children education, women empowerment, business production and profit etc, of the poor and help them in entrepreneurship development (Bakhtiari, 2011; Khandker, 2005; Okpara, 2010). There are other researchers who have reported negative or zero impact of microfinance in relation to poverty alleviation (Kondo, Orbeta, Dingcong, & Infantado, 2008; Morduch & Haley, 2002; Weiss & Montgomery, 2005).

In Pakistan, the phenomenon of Microfinance started in the beginning of the new millennium with the establishment of Khushali Bank (KB). The Microfinance Institutions Ordinance (2001) further facilitated the move, which lead to the establishment of specialized microfinance banks in the country. Besides, many other institutions such as Rural Support Programs, Non-governmental organizations (NGOs) and commercial financial institutions are also involved in alleviating poverty through micro-financing in the country. Existing research reports contradictory results about the impact of microfinance on overall wellbeing of the poor population in Pakistan. Some researcher have shown positive impact of microfinance on various dimensions of poverty (Abbas, Sarwar, & Hussain, 2005; Akram &
Husain, 2011; Shirazi & Khan, 2009). Whereas others have concluded that microfinance services are insufficient to assist the poor, and also the existing services are not fulfilling the objectives of poverty alleviation (Ali, 2007; Durrani, Usman, Malik, & Ahmad, 2011; Qureshi et al., 2012). According to Siddiqi (2008) from different studies conducted in Pakistan it is not clear that microfinance in the country have positive impact on poverty alleviation or negative.

Differences in studies on impact of microfinance and contradictions among their findings call for further research in the area. The present study is an attempt to further investigate the issue by examining the impact of microfinance on some important variables related to quality of life in Malakand KPK Pakistan. The study investigates the impact of microcredit on standard of living of the beneficiaries of three microfinance institutions, operating in Malakand, using in-depth interviews and questionnaires. The data collected was empirically tested using regression analysis.

Malakand was selected for the study as to our knowledge, there are no studies on impact assessment of microfinance in the region. Secondly majority of the population of the area are poor and living in rural areas. Thirdly the population, especially the poor, have been severely affected by the war against terrorism and need financial assistance for rehabilitation. Finally the joint family system in the study area calls for financial assistance and other microfinance services to facilitate their own family businesses.

The results of the study are expected to be useful for microfinance industry because it will help them in understanding the financial needs of the poor population of the country and how can microfinance be used in a way that can really help in alleviating poverty. It would also be helpful for policy makers in government and other institutions in their policy recommendations and formulation. The society at large will also benefit from the project because with improved microfinance services, quality of life will be improved and
the microfinance industry in the country will have a real impact on poverty alleviation. Local economic development will also ensue, resulting in more employment opportunities, better life standards, and an increase in government revenues.

**Literature Review**

The proponents of microfinance argue that microfinance can contribute in poverty reduction by providing a small amount of loan and other assistance services to help them develop their own micro businesses, improve their income level and thereby improving their overall standard of living. Studies conducted on impact of microfinance on business development and income level have shown that microfinance is positively associated with business production, sales, and profit of small and micro-enterprises, and the overall income level of the entrepreneurs have improved (Md Saad, 2010; Okpara, 2010; Panjaitan-Drioadisuryo & Cloud, 1999).

Improvement in income level is considered as an important indicator of poverty alleviation and mostly studies have examined the impact of microfinance on income level. But income is not the only way of getting rid of poverty and there is a difference between poverty reduction and income improvement (Wright, 1999). Income improvement can temporarily reduce poverty but after spending money the subject may become poor again, therefore microcredit programs must have long term effects on poverty (Chowdhury, Ghosh, & Wright, 2005). Therefore, the impact of microfinance should not only be assessed on income but also on other important poverty alleviation indicator such as expenditures, health care, nutrition status, education, assets condition and empowerment etc.

Numerous studies have proposed positive impact on these indicators of poverty reduction (Bakhtiari, 2011; Brannen, 2010; DeLoach & Lamanna, 2011; Hiatt & Woodworth, 2006; Holvoet, 2004; Hossain, 2012; Kundu & Mukherjee, 2011; Mawa, 2008; Mohindra &
Haddad, 2005; Panjaitan-Drioadisuryo & Cloud, 1999; Pitt, Khandker, Chowdhury, & Millimet, 2003). While some others have shown that microfinance did not help the poor in term of these variables (Hulme, 2000; Kondo et al., 2008; Morduch & Haley, 2002; Weiss & Montgomery, 2005).

In Pakistan, very limited studies have examined its impact on poverty alleviation and majority of them have reported positive impact on micro-enterprises, income, consumption, health and education and assets condition of the poor. For instance, Montgomery (2006) indicated that the credit program of the KB have helped the poor to enhance sales and profit of their micro-enterprises, improve their income, provide better education, and better healthcare facilities. Similarly, Setboonsarng and Parpiev (2008) used Propensity Score-Matching Methods to evaluate micro credit program and observe that the program has a significant positive impact on agriculture and livestock production.

Saleem and Zaman (2011) Found a strongest relationship between microfinance and living standard in term of access to better education, better health care facilities and better financial position. However, it has also been observed that microfinance has no significant impact on household assets conditions in Pakistan (Noreen, Imran, Zaheer, & Saif, 2011; Shirazi, 2012).

Very few authors have concluded that microfinance institutions in Pakistan are not fulfilling the objectives of poverty alleviation and existing services are insufficient to help the poor in order to get rid of poverty. For instance Noreen et al. (2011) concluded that microfinance in Pakistan has no significant impact on housing, assets conditions and expenditures patterns on households. Likewise, Ali (2007) observed that more than fifty percent of microcredit were misused and therefore have insignificant impact towards poverty alleviation in the region. Moreover, Ahmad (2008) argue that the overall microfinance institutions shares in formal financial sector in the
country is low and are unable to focus on their objectives on enhancing the quality of life of the poor.

From the above discussion it can be concluded that the existing literature provides insufficient information about the impact of microfinance services in the country and that there is need for further research on the impact assessment of microfinance. This study is an attempt to address this gap by assessing the impact of microfinance on some important variables of poverty alleviation.

**Theoretical Framework**

Welfarist (direct) and Institutionalist approach are the prominently used approaches for assessing the impact of microfinance (Morduch, 1999). The Welfarist approach focuses on the clients of microfinance institutions and advocates that subsidized microfinance programs should be initiated to provide support to the poorest. Whereas, the Institutionalist approach assumes that microfinance institutions should be strong enough to provide better and expended financial services. The Institutionalist approach mainly focuses on the supply side of microfinance and assumes that microfinance institutions should provide loans in such a way to recover their cost plus a margin. The profitability of the institutions in turn will strengthen their capability to provide better and expended financial services to the poor in long term and in a sustainable way.

The Welfarist approach mainly focuses on the demand side of the microfinance services and is deemed appropriate for pre-and-post impact of microfinance services as it mainly focuses on the clients rather than institutions. We have adopted the Welfarist approach for our study. The rationale for using this approach is that the study is mainly concerned with the contributions of microfinance institutions toward poverty reduction. The findings of the study would provide a feedback mechanism for the microfinance institutions to concentrate on areas which require improvement or modification.
Our study is primarily focused on the relationship between the microfinance services of the microfinance institutions and their impact on the livelihood of poor population. Therefore both independent and dependent variables are included. The diagram (See Appendix) shows the relationship between the independent and the dependent variables. The impact of microcredit on business development were measured. Business development is taken as a function of business process development, increase in business assets, profit and employment. Then the impact of business development on income of the households were examined and standard of living were measured by examining the impact of household income on expenditures on food and clothing, healthcare, education, housing and non-business assets.

**Methodology**

A survey questionnaire methodology was adopted for the study. This type of methodology is useful for covering a wide range of population at low cost and less efforts is required. All the beneficiaries of three microfinance institutions; KB, The Bank of Khyber (BOK), and Sarhad Rural Support Programme (SRSP) operating in Malakand were selected as a population for the study. The sample was drawn randomly from the beneficiary’s lists provided by these financial institutions and includes households from both urban and rural areas of the region. The questionnaire was developed after thorough study of existing literature and in-depth interviews with beneficiaries regarding improvement in quality of life through microfinance. A five point ‘Likert Scale’ (for strongly agree to strongly disagree) was used to collect information from the respondents. Data was collected through face-to-face discussion and through telephone administered questionnaire. Whenever possible the researcher visited the location and collected data in person. Since majority of the respondents were illiterate or having low level of education, the interviewer asked questions in their native language and the responses were then translated in to English. A Quality of Life Index was
developed from the data, which was then empirically tested using regression model explained below.

Model

$$QOL_{index} = a + \beta_NING_i + \beta_NEINC_i + \beta_AGK_i + \beta_MERST_i + \beta_EDU_i + \beta_DOM_i + \beta_INST_i + \beta_DURAT_i + \beta_TIMES_i + \beta_BRANCH_i + \beta_BPIMP_i + \beta_EMPL_i + \mu \ldots$$

Where:

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$QOL_{index}$</td>
<td>The Quality of Life Index, the dependent variable, and is calculated as $QOL_{index} = IMP_{index} + INC_{index} + ACC_{index} + INC_{index} + INC_{index}$, where $IMP_{index}$ = Perception of the respondent towards Improvement in Living Standard after the microfinance program, as measured through the questionnaire. $INC_{index}$ = Improvement/Additions to House made by the respondent after the microfinance program, $ACC_{index}$ = Access to better medical facilities after the microfinance program, $INC_{index}$ = Increase in non-business related assets due to microfinance program, $INC_{index}$ = Increase in school going children, which is basically a measure of improved access to education, after the microfinance program.</td>
</tr>
<tr>
<td>$INCOM_{inc}$</td>
<td>Increase in income after the microfinance program, calculated as Income After Micro Finance Program – Income Before Microfinance Program, calculated as $INCOM_{inc} = \frac{INC_{index}}{MAX(INC_{index})}$.</td>
</tr>
<tr>
<td>$NIINC_i$</td>
<td>The net increase in income variable, calculated by dividing increase in income ($INCOM_{inc}$) over the maximum increase in income in the sample. This was basically done for normalizing the data.</td>
</tr>
<tr>
<td>$EXPENS_{inc}$</td>
<td>Increase in Expenses after the microfinance program, in absolute amounts, calculated as Expenses After Micro Finance Program – Expenses Before Microfinance Program, calculated as $EXPENS_{inc} = \frac{EXPENS_{index}}{MAX(EXPENS_{index})}$.</td>
</tr>
<tr>
<td>$NEINC_i$</td>
<td>The net increase in expense variable, calculated by dividing increase in expense ($EXPENS_{inc}$) over the maximum increase in Expenses in the sample. This was basically done for normalizing the data.</td>
</tr>
<tr>
<td>$AGE_i$</td>
<td>Age of the respondent</td>
</tr>
<tr>
<td>$MARST_i$</td>
<td>Marital Status of the respondent</td>
</tr>
<tr>
<td>$EDU_i$</td>
<td>Education Level of the respondent</td>
</tr>
<tr>
<td>$DOM_i$</td>
<td>District of Domicile of the respondent</td>
</tr>
<tr>
<td>$INST_i$</td>
<td>Institution from which microfinance was obtained</td>
</tr>
<tr>
<td>$DURAT_i$</td>
<td>The duration for which microfinance was obtained</td>
</tr>
<tr>
<td>$TIMES_i$</td>
<td>Number of times the respondent received microfinance</td>
</tr>
<tr>
<td>$BRANCH_i$</td>
<td>Increase in Business Assets – investment in business after the microfinance program</td>
</tr>
<tr>
<td>$BPIMP_i$</td>
<td>Business Process Improvement due to the microfinance program, resulting either due to training or investment in appropriate tools and equipment</td>
</tr>
<tr>
<td>$EMPL_i$</td>
<td>Increase in employment resulting from expansion due to microfinance</td>
</tr>
</tbody>
</table>
Analysis

Descriptive Statistics

Table 1 shows the descriptive statistics of our data. The mean value for age is 1.8 with a standard deviation .849. Age was measured on four point scale. The mean value is very low, indicating that majority of the respondents were young. The mean value for marital status is 1.28 which is high and showing that majority of the respondents were married couples. Education was measured on a seven point scale and the mean value is 2.95 with a standard deviation of 1.76 indicating a high degree deviation from the average. The mean value for domicile is very low (1.34) showing that majority of the respondents belongs to Swat and Dir districts. Data were collected from the clients of three MFIs; BOK, KB and SRSP. The mean value for the MFIs is moderate (1.66) showing that on the average the number of customers selected for the survey were uniform. The duration of the loan shows a mean value of 2.77 which indicates that majority of the respondents received microcredit more than two years ago. Number of times received loan show a very low value of mean (1.14) indicating that mostly the respondents received microcredit for the first time.

Table 1:

Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>QOL_Index</td>
<td>1.82</td>
<td>.849</td>
<td>152</td>
</tr>
<tr>
<td>AGE</td>
<td>1.44</td>
<td>.584</td>
<td>152</td>
</tr>
<tr>
<td>MRST</td>
<td>1.28</td>
<td>.452</td>
<td>152</td>
</tr>
<tr>
<td>EDU</td>
<td>2.95</td>
<td>1.760</td>
<td>152</td>
</tr>
<tr>
<td>DOM</td>
<td>1.34</td>
<td>.476</td>
<td>152</td>
</tr>
<tr>
<td>INST</td>
<td>1.66</td>
<td>.829</td>
<td>152</td>
</tr>
<tr>
<td>DURAT</td>
<td>2.77</td>
<td>.646</td>
<td>152</td>
</tr>
<tr>
<td>TIMES</td>
<td>1.14</td>
<td>.431</td>
<td>152</td>
</tr>
<tr>
<td>NNINC</td>
<td>.3111</td>
<td>.231</td>
<td>152</td>
</tr>
<tr>
<td>NEINC</td>
<td>.39931</td>
<td>.2637</td>
<td>152</td>
</tr>
<tr>
<td>BAINC</td>
<td>.99</td>
<td>.114</td>
<td>152</td>
</tr>
<tr>
<td>BPIMP</td>
<td>.95</td>
<td>.210</td>
<td>152</td>
</tr>
<tr>
<td>EMPL</td>
<td>.18</td>
<td>.389</td>
<td>152</td>
</tr>
</tbody>
</table>
The net increase in income variable, calculated by dividing increase in income ($INCOME_{INC}$) over the maximum increase in income in the sample. The mean value for NIINC is .31 indicating the moderate level of increase in net income. The net increase in expense variable, calculated by dividing increase in expense ($EXPENSE_{INC}$) over the maximum increase in Expenses in the sample. This was basically done for normalizing the data. Its mean value is 3.9, which also indicate a relatively moderate level of monthly expenditures on food and clothing.

Increase in business assets was measured on a two point scale and mean value for it is very low (.99). This indicates that almost all the respondents have indicated an increase in their business assets. Improvement in business process was measure on three point scale; increased, decreased, stayed the same. The mean for it is very low (.95), indicating that business process of majority of the clients were improved. Finally the employment opportunities created by microfinance indicates a very level of average showing that microfinance in the region are not producing sufficient employment opportunities.

Analysis

Linear regression on quality of life index and on twelve variables was carried out through least squares.

Table 2:

<table>
<thead>
<tr>
<th>Model</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.504</td>
<td>.155</td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>-.092</td>
<td>-2.053</td>
<td>.094</td>
</tr>
<tr>
<td>MRST</td>
<td>-.246</td>
<td>-2.913</td>
<td>.004</td>
</tr>
<tr>
<td>EDU</td>
<td>.265</td>
<td>2.618</td>
<td>.010</td>
</tr>
<tr>
<td>DOM</td>
<td>.028</td>
<td>.291</td>
<td>.772</td>
</tr>
<tr>
<td>INST</td>
<td>.067</td>
<td>.672</td>
<td>.502</td>
</tr>
<tr>
<td>DURAT</td>
<td>-.004</td>
<td>-.046</td>
<td>.963</td>
</tr>
<tr>
<td>TIMES</td>
<td>-.144</td>
<td>-1.866</td>
<td>.064</td>
</tr>
<tr>
<td>NIINC</td>
<td>.065</td>
<td>3.682</td>
<td>.007</td>
</tr>
<tr>
<td>NEINC</td>
<td>-.070</td>
<td>-2.782</td>
<td>.006</td>
</tr>
<tr>
<td>BPIMP</td>
<td>-.042</td>
<td>-.548</td>
<td>.585</td>
</tr>
<tr>
<td>EMP</td>
<td>.474</td>
<td>6.373</td>
<td>.000</td>
</tr>
<tr>
<td>EMPL</td>
<td>-.025</td>
<td>-.312</td>
<td>.755</td>
</tr>
</tbody>
</table>
The table shows the regression coefficients of all the independent variables. Out of all the twelve variables seven variables; Age (AGE), marital status (MRST), education level (EDU), numbers of times received micro credit (TIMES), net increase in income (NIINC), net increase in expenditures (NEINC) and business processes improvement (BPIMP) were found to be significant, while the remaining five variables were found insignificant.

Age (AGE) shows a negative significant relationship with the quality of life index, indicating that relatively aged respondents do not efficiently utilize the microfinance funds and have negative impact on their quality of life as compare to young clients who have efficiently utilized their micro loan and thereby improved their quality of life.

Marital status (MRST) also shows a negative significant relationship with quality of life index. Younger and unmarried clients are more likely to efficiently utilize their micro loan. It is because of the facts that relatively younger and unmarried individuals are more enthusiastic toward the effective utilization of microfinance funds, and majority of them received micro loans for the first time. Younger people may use the income they generate from their businesses for improving their quality of life. On the other hand aged respondents have more necessities, because they have larger families and therefore they use their earnings more on basics necessities.

Education level (EDU) of the respondents was found to have a significant positive relationship with quality of life. Educated individuals were more likely to improve their quality of life due to microfinance program. This could be due to various reasons, for example the know how to better manage business due to education level, the level of opportunities available also increase due to education level, for example many small businesses with good returns might not be feasible for an uneducated person, due to the level of literacy needed. Also for better managing finance and keeping proper records:
one might be able to better manage the finance of the business, its inventory levels and its operations in check if there are even basic levels of literacy. It can also be argued that educated people will have a more mature perspective on life as compared to uneducated.

A very weak positive but insignificant relationship was found for domicile (DOM), and a negative and insignificant relationship between quality of life and microfinance institutions (INST). Duration with the microfinance institutions (DURAT) was also found insignificant.

The number of times received loan (TIMES) was interestingly found to be negatively correlated with quality of life index and the results were significant. Loan received for the first time if effectively used may strengthen the financial position of the client and there is no need for further loans. On the other hand if fund received for the first time is not used effectively it can negatively affect the financial situations of the client and he or she may need further funds to pay for the installments of the previous loan. That’s why the first timers have reported positive significant impacts of microcredit on their quality of life.

Net increase in income (NIINC) was found to have positive correlation with quality of life and the results were significant. This indicates that microfinance services in the region have improved the income of the clients and thereby improved their standard of living. Net increase in expenditures on food and clothing after obtaining microfinance (NEINC) were found to be negatively correlated with the quality of life index and the results were significant. The variable with the most significant relationship in our research was improvements made in business processes after availing microfinance (BPIMP). The variable Increase in Business Assets (BAINC) however was not found to be significant. This could be due to the fact that investment in unnecessary business assets will not improve quality of life. However, if business processes are improvement, it will guarantee that the
business performs efficiently and effectively and generate funds, ultimately improving the quality of life. Therefore, microfinance institutions need to focus more on improving business processes, and the overall business operations, and not just acquisition of new assets. Finally employment opportunities (EMPL) provided by microfinance facilities were found to have weakly negatively correlated with quality of life.

Our regression results are consistent with majority of studies conducted abroad (Bakhtiari, 2011; Brannen, 2010; DeLoach & Lamanna, 2011; Hiatt & Woodworth, 2006; Holvoet, 2004; Hossain, 2012; Kundu & Mukherjee, 2011; Mawa, 2008; Mohindra & Haddad, 2005; Panjaitan-Drioadisuryo & Cloud, 1999; Pitt et al., 2003). Our findings also show consistency with mostly of the studies conducted in Pakistan (Montgomery (2006) Setboonsarng & Parpiev, 2008; Saleem & Zaman, 2011). However our results are inconsistent with some previous studies (Hulme, 2000; Kondo et al., 2008; Morduch & Haley, 2002; Noreen et al., 2011; Ali, 2007; Ahmad, 2008).

**Collinearity Statistics**

The following table shows the collinearity statistics of the predictor variables. The results do not indicate any harmful correlations. However there is a possibility of a certain degree of multicollinearity as some of the predictor variables may be some degree correlated. For measuring multicollinearity we have calculated the Variance Inflation Factor (VIF) and Tolerance. Our results do not show any such problems of multicollinearity. We also calculated the Durbin-Watson statistics to test the independency of the residuals. Values of Durbin-Watson statistics, at 1.726, which is very close to 2, indicates that our residuals are independent.
The table shows the model summary of the linear regression. The value of R is .556 that shows that a moderate positive relationship exist among the dependent and independent variables. The value of R square in our case is .409 indicating that about 41% changes in the quality of life are explained by the independent variables. The value of adjusted R square is .379, which provides a more accurate result. The value of Durbin-Watson is 1.876, indicating that our residuals are uncorrelated.
The table shows analysis of variance (ANOVA) of the regression model. Our model shows the F value 5.176 which is much greater than 1 with a significance level of .000. It means that our model is highly significant in predicting the estimated variable.

**Conclusion**

Microfinance is considered as a useful strategy for poverty alleviation and it is in operation around the world. This study investigated the impact of microfinance on standard of living of poor people of Malakand Pakistan. The overall results show a moderate significant positive relationship among the quality of life and the independent variables. The most significant variable in our analysis is the business processes improvement after obtaining microfinance. Microfinance has significant positive impact on business process and business process improvement has positive impact on quality of life. Educational level and net increase in income also show positive significant impact on quality of life after availing microfinance. Four variables age of the respondents, their marital status, number of times received microfinance funds and net increase in expenditures on food and clothing were found to have negative significant impact on quality of life. Our results are consistent with majority of studies conducted within Pakistan and abroad. However the findings show contradiction with some studies.
From the findings it can be concluded that microfinance institutions in the region play a vital role in improving the standard of living of poor people. They can further improve the quality of life of the poor people by providing other non-financial services such as business training, supervision on loan utilization, conducting awareness programs among the people, etc.
Empirical Assessment of the Impact...  

References


Empirical Assessment of the Impact... Research


DYNAMIC LINKAGES BETWEEN FOREIGN DIRECT INVESTMENT, PUBLIC INVESTMENT AND PRIVATE DOMESTIC INVESTMENT: EVIDENCE FROM PAKISTAN

Syed Ammad Ali¹, Hasan Raza² and Atif Iqbal³

Abstract:

This paper explores the effect of FDI on private investment that whether FDI crowd-in or crowd-out the private domestic investment in Pakistan. For measuring this relationship annual time series data from 1977 to 2011 is used through an autoregressive distributed lags (ARDL) model. The outcome is evident that FDI has significant positive impact on private domestic investment; indicating a crowding in effect. The error correction term shows a significant strong convergence 73% toward equilibrium. These results emphasize to create such an investment friendly environment which attracts foreign investment and promotes investment opportunities for private domestic investors.

Keywords: Public Investment (PI), Private Domestic Investment (PDI), Foreign direct investment (FDI), crowding In-Out, Pakistan.

JEL Classification: G 110

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Introduction:

Foreign Direct Investment is deemed to be a significant determinant of economic development, especially in developing countries. There are several channels through which FDI stimulate the growth, not only of the recipient country, but also for the investor, it helps in capital accumulation, human resource development, technological transfers, introduces new managerial skills, improve the product quality of the domestically produced goods and services, and many more [Campos and Kinoshita (2002), De Mello (1999), Duasa (2007), Pradhan (2009), Dabour (2000), Lean and Bee Wah (2011), Atique et. al. (2004), Arshad and Shujaat (2011)]. In addition to the direct effect there are some indirect benefits usually called “collateral benefit” as to attract the foreign investment governments have to create a peaceful environment, good governance, political stability, better infrastructure system and strong financial market among others.

Following the international trend Pakistani government also adopted the liberalization policies, trying to attract FDI, figure 1 is showing the invest to GDP ratio, this graph depicts that for the last few years there is a decline in all kind of investment public, private and foreign direct. Another important thing is the trend of different investment here PI showing a continues declining trend, PDI was rising till 2006 and after that it has a declining trend while foreign direct investment is also following the PDI and as in 2006 PDI reduced foreign investment also started declining, this trend is indicating a positive relationship between private domestic and foreign direct investment. Despite having this important relationship, there is no such major study in Pakistan, as per our knowledge. Mostly case studies in Pakistan are concerned with the growth effects of FDI and determinants of FDI [Azam and Lukman (2010), Anjum and Nishat(2004), Rehman et al. (2011), Mughal and Akram (2011), Arshad and Shujaat (2011)].
The objective of this study is to examine the dynamic relationship among FDI, PDI and PI, more specifically we want to investigate whether FDI and PDI are complements or substitute. This is an important issue for developing countries like Pakistan, other features of this study are; an annual time series data set is used from 1977 to 2011. Additionally, the stationarity of the data set is checked through a unit root test, and ultimately, an autoregressive distributed lags (ARDL) bound testing approach of co-integration is used to know the long and the short run relationships.

Remainder of the study contains, section 2 presents review of earlier studies. Section 3 discusses the data and econometric model, section 4 demonstrates empirical outcomes and finally conclusion is drawn in section 5.

Review of Literature:

Empirical literature regarding the impact of FDI on economic growth and domestic investment is divided, no certain conclusion can be drawn, many studies found a positive growth and domestic investment effect while others found a negative effect.
The inconclusiveness has made it a country specific issue in recent past Zeshan et al. (2004) estimated the effect of FDI on economic development in Pakistan through a co-integration analysis for the period from 1970 to 2001 they concluded that growth impact of FDI is grater under export promotion regime in contrast to import substitution regime and also supported the Bhagwati hypothesis. Another study conducted by Arshad and Shujaat (2011) investigated the relationship between sectoral FDI and sectoral yield in the case of Pakistan through a panel co-integration and causality analysis while the entire economy is divided into three sectors i.e. primary, manufacturing and services. The study consists of 1981 to 2008 data set and the results is evident that FDI has positive impact on output in the long run and there is long run causality running from GDP to FDI while in the short run there is a two way causality between GDP and FDI. The sectoral results vary from sector to sector mainly FDI causes services and primary sector growth on the other hand growth in manufacturing sector causes FDI in manufacturing sector.

Arshad (2012) analyzed the effect of FDI on export, import and GDP growth in Pakistan through a restricted VECM model over the period 1965 to 2005. He concluded that there is no long run connection among FDI and GDP on the basis of co-integration equation, while the causality analysis show that FDI do not granger cause the GDP but GDP causes the FDI. Arshad (2007) examined the growth effect of FDI and financial liberalization in the case of Pakistan using an ARDL bound testing model based on data from 1976 to 2005. This is based on GDP growth as dependent variable while explanatory variables were foreign direct investment to GDP ratio, labour force, change in capital stock as a proxy of capital, private sector credit to GDP ratio and an interaction term, the product of financial liberalization and foreign direct investment used. In his rigorous analysis he found that FDI has positive impact on growth in the short run while in long run it also has positive impact provided that there are better domestic financial conditions.
James (2009) analyzed the crowding out/in impact of PI and FDI for Malaysia through a VECM model. The study period consists of 1960 to 2003 and the aftermath shows that PI and FDI both are complementary to the PDI. Dolly and Aditi Sawant (2012) investigated the crowding in/out relationship between FDI and domestic investment in case of India and China using the “Agosin and Mayor (2000) coefficient” for crowding in/out approach, they further estimated the long run relationship through co-integration and Granger causality. Two separate models were estimated for each country for the time period 1980 to 2010, the results evident that there is crowding-in in the case of India while in China a strong crowding-out exist while the co-integration and causality test show that there is no co-integration and no Granger causality is found in the case of China.

Lean and Bee Wah (2011) examined and investigated the relationship among growth, FDI and gross fixed capital formation as domestic investment for Malaysian economy with the help of data set from 1970 to 2009 through VECM model. The results show that FDI has positive effect on growth while domestic investment has negative effect on growth while the major finding is that FDI crowd in domestic investment. Saglam and Yalta (2011) examined the dynamic association of public investment, private investment and foreign direct investment using a VAR model for Turkey while the study period consist of 1970 to 2009, but the results do not find any long run relationship among the variables and a very weak association exist among these variables as only 0.45% and 2% variation in private investment and public investment respectively is caused by foreign direct investment.

Titarenko (2006) investigated the relationship between FDI and domestic investment in case Latvia by applying a quarterly data set from 1995 to 2004. The results showed that FDI has a normative impact on domestic investment. Tanget al. (2008) estimated the impact of FDI on domestic investment and economics growth in China for the period of 1988-2003 through a VECM model. In their trivariate
Dynamic Linkages between Foreign Direct Investment . . . Research

model consisting FDI, GDP and domestic investment (DI) they found a positive significant effect of FDI on domestic investment. Furthermore the causality results show that there is unidirectional causality from FDI to DI and FDI to GDP.

Sevilet et al. (2012) analyzed the crowding in/Out effect of FDI in Middle Eastern and North African (MENA) states through a panel GMM technique, while the study period consist of 1980 to 2008. They drew the conclusion that FDI crowd out domestic investment for both oil rich and oil poor countries. Agosin and Ricardo (2000) examined the crowding out. In effect of FDI to domestic investment in a panel data for 32 developing countries (12 African, 8 Asian and 12 Latin American) over the period 1970–1996. They found the largest crowding in effect in Asia and then Africa while there was crowding out in the case of Latin America. Eregha (2012) investigated the link between FDI and domestic investment among economic community of West African states (ECOWAS) through a panel co-integration, by using the data of 10 countries from 1970 to 2008. The study found a negative FDI impact on domestic investment and support a crowding-out effect.

Theoretical Framework

After the famous work of Barro (1990) many extension have been made in endogenous growth model under the assumption that public goods and public expenditures are productive [Sala-i-Martin (1997), Ghosh-Roy (2004), Tsoukis-Miller (2003)]. Similarly PDI also considered very important for economic growth as it increases aggregate demand and capital stock Firebaugh (1992). However the combined effect of these two types of investment is arguable and varies across the nations and many studies found crowding-out [Ganeli (2003), Voss (2002), and Majumder (2007)] while other based on crowding-in [Easterly and Rebelo (1993), Baotai (2004) Bose (2007)].

This crowding in/out impact of PI and PDI raises the question of relationship between FDI and PDI, whether FDI and PDI are
complements or substitute in the recipient country. The relationship of FDI and PDI is very important for each country, as these variables are closely related to each other and in some cases there is unilateral causality or even bilateral causality. On the theoretical ground, it is known that a good infrastructure situation attracts private investors at domestic level as well as from abroad, as the better infrastructure reduces the cost of doing business which is a main determinant of FDI, similarly PDI also stimulate FDI as higher level of PDI indicates good economic situation in the country which also attracts FDI. Interestingly, the empirical evidences varies among countries, some empirical studies noticed crowding in the effect of FDI on PDI by establishing new industries, investment opportunities, demand for local inputs as discussed by [Luo (2007), Tang et al. (2008), Lipsey, (2002)]. On the other hand many other found a crowding out effect of FDI [Agosin and Machado (2005), Misun and Tomsik (2002)] when the FDI compete with domestic industry by using domestic resources, skilled labor, capital and other inputs.

These empirical contradictions advises that the impact of the FDI on PDI varies country to country, depending on available infrastructure, government policies, trade policies, domestic market structure and others, therefore it is an empirical matter for each country. On the basis of these theoretical considerations following empirical specification can be formulated

\[ PDI_t = f(FDI_t, PUB_t) \]

Where PDI is the steady state Private Domestic Investment, public is PI and FDI is the foreign direct investment while signs are indeterminate. However an important determinant of private investment, the user cost of the capital, is not incorporated as argued by Agosin & Mayor (2000) and Dolly & Aditi (2011) that in case of development countries most of the investment models did not find significant effect of interest rate and other proxies for user cost.
Data and Methodology:

The variables of interest of this study are FDI, PDI and PI, all variable are taken from world development indicator (WDI) data set at current US$; based on 35 annual observations, covering the period from 1977 to 2011. Furthermore all the variables are transformed by dividing GDP.

For measuring the long run, the short run and the causal link among the stated variables, the above function of private domestic investment can be transformed into the following model:

\[ PVTGDP_t = \lambda_0 + \lambda_1FDIGDP_t + \lambda_2PUBGDP_t + \epsilon_t \ldots \ldots \]  \hspace{1cm} Equation 1

Equation 1 is the linear formulation of the model where:

- \( PVTGDP \) is the private domestic investment to GDP ratio
- \( PUBGDP \) is the public investment(PI) to GDP ratio
- \( FDIGDP \) is the foreign direct investment to GDP ratio
- \( \epsilon \) is the error term.

**Autoregressive distribute lag (ARDL) model**

There are various approaches to find the co-integration among the variables such as Engle-Granger (1987) test, maximum likelihood based Johansen (1991, 1992), and Johansen and Juselius (1990) test etc, these approaches have a severe short coming that the order of integration must be same for all variable and usually better for large data size. Since this study has a limited or small data set and the order of integration is not same, hence we adopted an Autoregressive Distributed legs (ARDL) Model by Pesaran and Shin (1995, 1999) and Narayan (2004) or ARDL bounds testing approach to co-integration.
that is much suitable for small samples (Haug, 2002). There are several other advantages to use this approach even like it does not required any pre-testing of order of integration of regressors, whether they are I(0), I(1) or the mixture of both. Furthermore with ARDL approach, different variables can have different optimal lags, that are not possible with the test of standard co-integration.

The following unrestricted error correction model (UECM) is utilized to assess long and short run relationship among the study variables:

\[
\Delta_{t}PVTGDP_t = \kappa + \sum_{i=1}^{K_1} \delta_i \Delta_{t-i}PVTGDP_i + \sum_{i=0}^{K_2} \beta_i \Delta_{t-i}PUBGDP_i + \sum_{i=0}^{K_3} \alpha_i \Delta_{t-i}FDGDP_i + v_t ~\text{--- Equation 2}
\]

Now Equation 2 is used to find co-integration between economic growth and revenue side of the fiscal policy, while 6 is used to find co-integration between growth and the expenditure side of the fiscal policy. Where \( \Delta \) is first-difference operator and \( K_1, K_2 \) and \( K_3 \) are the optimal lag length. The long-run relationship existence is known through the F test. Null hypothesis is for no co-integration among the variables in equation 2

\[ H_0 : \lambda_0 = \lambda_1 = \lambda_2 = 0 \] against the alternative hypothesis \( H_1 : \lambda_0 \neq \lambda_1 \neq \lambda_2 \neq 0 \).

Since this study consist of relatively small sample size which is 38 observations, Narayan reported that the critical values are (2204) used asymptotic critical value bounds, which depends on the order of integration whether the variables are I(0) or I(1) or a mixture of both. In this test there are two sets of critical values one set for I(1) which is upper bound and the other is I(0) series which is lower bound limit. If the calculated F test statistic exceeds from upper bound limit, the conclusion may be drawn that there is evidence of a long-run relationship between the variables i.e. there is co-integration exist. If the test statistic is below the lower bound value, the null hypothesis of no co-integration cannot be rejected and if the test statistics lies
between the lower and upper bounds limits, the test of co-integration is indecisive.

Once after obtaining the long-run relationship (co-integration) of variables afterwards long-run and error correction models can be derived from equations 2.

\[ \Delta PVTGDP_t = \kappa + \sum_{i=1}^{41} \delta_i \Delta PVTGDP_{t-i} + \sum_{i=0}^{42} \beta_i \Delta PUBGDP_{t-i} + \sum_{i=0}^{43} \gamma_i \Delta FDIGDP_{t-i} + \sum_{i=0}^{44} \lambda_i ECM_{t-i} + \nu_t. \]

Equation 3

The above equation 3 is the error correction model measuring short run dynamic relationship of the study variables. All equations are analyzed in the software Microfit5.

**Empirical Results**

Stationarity is one of the main properties for econometric analysis and even it guides for econometric methodology selection. Augmented Dickey-Fuller test is used and the result of the test is depicted in table 1.

**Table 1:**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Trend/Intercept</th>
<th>Augmented Dickey-Fuller test statistic</th>
<th>Phillips-Perron test statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Level</td>
<td>First Difference</td>
</tr>
<tr>
<td>FDIGDP P</td>
<td>C</td>
<td>1.7216</td>
<td>0.9994</td>
</tr>
<tr>
<td>PVTGDP P</td>
<td>CT</td>
<td>-3.3380</td>
<td>0.0768</td>
</tr>
<tr>
<td>PUBGDP P</td>
<td>CT</td>
<td>-4.8016</td>
<td>0.0023*</td>
</tr>
</tbody>
</table>

C: Constant, CT: Constant with Trend

* Significant at 1%

Table 1 shows that foreign direct investment to GDP ratio (FDIGDP) and private domestic investment to GDP ratio (PVTGDP) are stationary at first difference while PI to GDP ratio (PUBGDP) is
stationary at level. The results of mix stationarity of the variables enforce us to use an ARDL model instead of VAR/VECM.

Once after measuring the order of integration equation 2 is used for co-integration analysis through a bound testing approach Pesaran et. al. (2001) and Narayan (2004), while the lags selection is based on usual information criteria which is 2 lags. The result of F-Statistics for bound testing are depicted in table 2, the result of F-statistics show that at 5% there is a long run relationship among the variables.

Table 2:
F-statistics for co-integration relationship

<table>
<thead>
<tr>
<th>Value</th>
<th>Bound Critical Values* (Restricted Intercept with no trend)</th>
<th>Bound Critical Values* (Restricted Intercept with trend)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I(0)</td>
<td>I(1)</td>
</tr>
<tr>
<td>F-statistics</td>
<td>5.485</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>5%</td>
<td>3.478</td>
</tr>
<tr>
<td></td>
<td>10%</td>
<td>2.845</td>
</tr>
</tbody>
</table>

* Note: Based on Narayan (2004)

After the confirmation of co-integration, the long run effect of FDI on PDI is reported in table 3; the result evident that in long run FDI have significant positive impact on PDI in other words FDI is complement with PDI. PI is showing a significant normative effect on PDI in the long run. The lower part of table 3 based on diagnostic tests which show that the model is good fitted with a high R², the functional form of the model is checked by Ramsey’s Reset test and the test results support the correct functional form. The Normality and Heteroscedasticity tests also support the assumptions of normality and homoscedasticity, for autocorrelation LM test result show that there is no serial correlation. The parameter’s stability is checked through cumulative sum and cumulative sum square, which results are presented in appendix A; Figure-1 and Figure-2, where the graph of CUSUM and CUSUMSQ lie within the significance boundaries at...
5% showing the parameters stability in short and long run, as Brown et al. (1975) discussed.

Table 3:
Estimated Long Run Coefficients

<table>
<thead>
<tr>
<th>Dependent variable is PVTGDP</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>T-Ratio[Prob]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBGDP</td>
<td>-.49815</td>
<td>.090933</td>
<td>-5.4782[.000]</td>
</tr>
<tr>
<td>FDIGDP</td>
<td>1.4911</td>
<td>.26239</td>
<td>5.6826[.000]</td>
</tr>
<tr>
<td>INPT</td>
<td>.11949</td>
<td>.0091587</td>
<td>13.0470[.000]</td>
</tr>
</tbody>
</table>

Diagnostic Test

| R-Squared                  | 0.93756     | R-Bar-Squared  | 0.92418       |
| F-stat. (6, 28)            | 70.0701[.000]|

A: Serial Correlation
F(1, 27)= 1.2207[.279]

B: Functional Form
F(1, 27)= .88248[.356]

C: Normality
CHSQ(2)= 1.2020[.548]

D: Heteroscedasticity
F(1, 33)= .48138[.493]

Note: A: Lagrange multiplier test of residual serial correlation
B: Ramsey's RESET test using the square of the fitted values
C: Based on a test of skewness and kurtosis of residuals
D: Based on the regression of squared residuals on squared fitted values

The outcomes of error correction model or short run behaviour of PDI with respect to FDI are generated from equation (3) and presented in Table 4. ECM variable is depicting the short run adjustment in PDI due to the reason of change in FDI and PI, the coefficient of ECM (-1) is –0.738 which is highly significant and also confirming the existence of co-integration and it shows that a deviation from equilibrium during the current year will be corrected by 73.8% in the next period. The short coefficient of FDI is also showing a complementary effect on PDI.
Table 4:

Error Correction Representation of the Model

<table>
<thead>
<tr>
<th>Regressor</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>T-Ratio [Prob]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVTGDP1</td>
<td>0.28836</td>
<td>0.12227</td>
<td>2.3584 [0.025]</td>
</tr>
<tr>
<td>dPUBGDP</td>
<td>-0.20774</td>
<td>0.19184</td>
<td>-1.0829 [0.288]</td>
</tr>
<tr>
<td>dPUBGDP1</td>
<td>0.55571</td>
<td>0.15399</td>
<td>3.6088 [0.001]</td>
</tr>
<tr>
<td>dFDIGDP</td>
<td>1.1007</td>
<td>0.2727</td>
<td>4.0363 [0.000]</td>
</tr>
<tr>
<td>dINPT</td>
<td>0.088211</td>
<td>0.015291</td>
<td>5.7689 [0.000]</td>
</tr>
<tr>
<td>ecm(-1)</td>
<td>-0.7382</td>
<td>0.1184</td>
<td>-6.2346 [0.000]</td>
</tr>
</tbody>
</table>

Conclusion and Policy Implications

This articulation is an attempt to examine the effect of FDI on PDI; whether FDI crowd in or crowd out the PDI in Pakistan. The results of this study demonstrate that in the long run FDI has a strong positive impact on PDI and a unit increase in FDI to GDP ratio will increase share of PDI in GDP by 1.5 units. The short run results also indicate positive effect of FDI on PDI significantly. The results conclude that foreign direct investment crowd in the PDI in Pakistan. These findings are much similar to other studies [James (2009), Kim and Seo (2003), Dolly and Aditi (2011)] and suggest that government should create such an economically and politically viable environment which attracts foreign investment, instead of providing direct incentive to private investors. This increase in foreign investment will increase the PDI. For further research in future researchers need to measure the threshold level of FDI, which is up to what level the FDI has a positive impact on domestic investment. Another dimension of research could be; an industry level analysis is required to measure effect of FDI in various sectors and could find which sector has favorable effect of FDI and where it has an adverse impact.

4- As in table 3 the coefficient of FDIGDP is positive and highly significant.
5- Found crowding in effect in Malaysia, Korea and India respectively.
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Appendix A:

![Plot of Cumulative Sum of Recursive Residuals](image1)

The straight lines represent critical bounds at 5% significance level.

![Plot of Cumulative Sum of Squares of Recursive Residuals](image2)

The straight lines represent critical bounds at 5% significance level.
CORPORATE GOVERNANCE AND EXTERNAL FINANCE: AN EMPIRICAL STUDY OF THE BANKING AND FINANCIAL SECTOR OF THE KARACHI STOCK EXCHANGE

Zainab Daud¹, Laila Taskeen Qazi² and Atta-Ur-Rahman³

Abstract

This research explains the relationship between corporate governance and external finance. It uses a set of independent variables mainly related to disclosure and transparency to check the corporate governance level of the firm and its effect on external finance. The analysis of data of 30 companies listed on the KSE is done for a time period spanning over 5 years from 2007 to 2011. The empirical findings of the study depict a positive relationship between good corporate governance practices and external financing thus validating the notion that the companies tend to follow better governance practices when they need to generate funds externally. The study uses size as a control variable and finds out that larger firms are more prone to be following a good standard of corporate governance as they have to access more external finance.

Keywords: Corporate Governance, External Finance, Disclosure, Transparency

JEL Classification: G 340

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External finance is an essential feature in today's world as companies strive to grow and expand. Generating enough finances is not an easy task in these tough economic environments. The ownership structure of a company determines whether a company relies more on internal finance or external finance. Other factors like enforcement of law, economic conditions and developments in the markets also play a role here. Research suggests that changes in macro environment dictate the access to external finance by a firm for instance, changes in business cycle and monetary policy (Kashyap, Stein and Wilcox, 1993; Oliner and Rudebusch, 1996a, 1996b). However researches also suggest that at a micro level the firm’s vulnerability to changes in macro-economic conditions dictate the access to external finance such as a younger and a smaller firm will be more affected by change in monetary policy. Studies show that financing pattern of different sizes of firms and the level of market development are related to some extent (Beck, Thorsten, Kunt & Maksimovic, 2008). External finance is accessed less by smaller firms due to constraints faced by them as a result of informational asymmetries. However, larger firms find it easy to access finance externally through a wide variety of sources like leasing, banks, suppliers and equity investments.

Transparency and disclosure is one of the key aspects of corporate governance. Investors and fund providers always grant their funds with an objective of getting returns on it. Therefore they always want to gather the maximum information about the companies they want to invest in. Most of the investors are risk averse and in cases of less information about a given company they expect higher returns for the additional amount of risk they are preparing to undertake. This view is agreed upon by a large body of research (Hope, Thomas and Vyas, 2009; Easly and O’Hara, 2004). Therefore by increasing the amount of information provided to the fund providers, or in other words the transparency and disclosure, a firm cannot only
reduce the risk taken by the providers of funds but also the additional amount of cost the firm will have to undertake for accessing funds externally (Sleifer & Wolfenzon, 2002). This leads to recognizing another important aspect of determining the advantage of better disclosure practice that is the effect it has on the rate of returns of investors (Diamond & Verrechia, 1991). Investors tend to reduce their rate of return for companies disclosing more information following corporate governance procedures. Reducing informational asymmetries increase investment opportunities of firms and thus can lead to more profitable outcomes.

This study tends to contribute towards the existing literature by finding a relationship between corporate governance and access to external finance. The study recognizes the importance of corporate governance for a firm in need of funds. With good governance, investors rely more on the managerial practices and have more faith in the company as they have a chance to monitor the actions of firms (Bushman & Smith, 2001). Thus they provide their funds more readily. Good governance also tends to reduce the agency problem between shareholders and managers of the firm and provide long-term advantages to the investors and shareholders. This is considered as an additional benefit of corporate compliance and serves as a driving force for investors granting their funds. Therefore the study while investigating the relationship of corporate governance and external finance found out a significant positive relation between these two variables. The findings depicted that companies planning to access more finance externally tend to follow good governance. This result was parallel to the findings of Durnev and Kim (2005) who also found out that, firms follow higher levels of corporate governance when they want to raise more capital. In the context of this research study, it can be inferred that companies tend to become more transparent and disclose more information to the public when they intend to acquire funds from them.
In countries like Pakistan the legal and regulatory environment is not as strong. The World Bank Report on Observance of Standards and Codes (ROSC) provides an assessment of corporate governance practices in Pakistan in the year 2005. The report suggests that although corporate governance related awareness is on the rise and reforms and regulations have improved, investor protection still remains a key issue. The reasons for this considered to be concentrated family ownerships and reduced objectivity of boards. Also, the report says that in past companies relied more on less costly sources of external finance like low cost loans and considered equity as an inefficient way of raising funds; however such a perspective is on the verge of change.

The check and balance system is not well developed and is weak in most of the situations. The lines of authorities are not well defined. Therefore investors and external providers of funds find it difficult to get any guarantee about the credibility of the firms before granting their funds. Corporate governance can serve as check system only if it is properly followed by the firms. This research identifies some important factors of corporate governance that can be used to check the credibility and disclosure level of firm and hence can help investors in making decision about a particular firm to invest in. Also, the investors and public in Pakistan need to be more informed about the code requirements that should be followed by firms. This study helps to improve the level of awareness in this regard. The study identifies certain factors like disclosure about remuneration committee or board size etc that can be easily checked by the investors while deciding upon a company to invest into even though if they are not well informed about the corporate practices. The study also improves upon the body of research done in Pakistan with specific reference to the banking and financial sector.

The rest of the study is sequenced in the following manner to give a more meaningful direction to the research. Section 2 describes the relevant literature pertaining to the access of finance by firms and
the importance of corporate governance in this regard. Section 3 explains the methodology undertaken for the given research, the sources of data collection and the specific models used in the study. Section 4 focuses on the analysis and findings of the research by explaining the results of the study. Section 5 gives the conclusion in a precise and comprehensive way.

**Literature Review**

Financing patterns of firms are known to vary across countries. Studies show that these differences are mainly because of variances in the legal and financial environments of countries (Rajan & Zingales, 1998; Shleifer & Vishny, 1998; Gertler 1988; Laporta, et al., 1997). It is known that firms obtain less external finance in countries with weak legal and financial system which in turn results in less growth. A relatively recent research by Booth, Aivazian, Maksimovic and Kunt (2001) suggested that financing pattern differences in developed and developing countries are governed by the same variables. However, Maksimovic and Demirguc-Kunt (1999) concluded that the development of stock markets and banks, accounts for such varying patterns. La porta, Silanes, Shleifer and Vishny (1997) were of the view that the legal environment of a country plays a role in obtaining finance from suppliers of funds. Using data from 49 countries they found out that when legal environment is more protective, investors are more willing to invest their funds. In such cases they don’t expect their interests to be impounded by owners and managers of firms and the trust level increases.

Literature further suggested that small firms rely more on informal sources of external finance in countries with weak legal systems. On the contrary, Beck, Kunt and Maksimovic (2004) found out after a firm level survey in 48 countries that small and medium sized firms use a wider source of external finance including leasing, debt and equity finance. They also found out that in relation to size of firm, large firms use more external finance than smaller firms especially finance from
banks. Using a data sample of 10,000 firms from 80 countries, Beck, Kunt, Leaven and Maksimovic (2004) confirmed this view and suggested that smaller and younger firms are more likely to face greater financing obstacles as compared to larger and older firms. On the other hand a research on Spanish firms by Saurina, Gonzalez and Lopez (2007) indicated that smaller, riskier and younger firms are more prone to use external means of financing than internal and also take advantage of such activity by disclosing more bank relationships such as number of collateral required and number of banks that gave loans. It is also known that foreign owned firms find fewer obstacles in obtaining external finance as they can easily access foreign funds (Harrison & Macmillan, 2003). Oliver and Rudebusch (1992) suggested that listed firms could easily fulfil financial needs because reporting and listing requirements of stock exchange reduce informational asymmetries.

Investors play important role as providers of funds. Financial transparency can serve as an essential element in this regard. Investors limit their stream of funds when informational uncertainty rises or they can respond by increasing their required rates of return thus limiting external finance sources and investment opportunities of firms. This problem can be solved by removing the informational asymmetry and allowing investors to better understand the firm (Smith & Bushman, 2001). Such informational risk can be reduced only if investors consider the information provided by firms to be transparent. Hope, Thomas and Vyas (2009) conduct a research on a sample of private firms in about 68 countries and find out that the transparency problem can be solved by using the services of an external auditor. The external auditor being a third party gives the company an edge. Precision can also be improved by external auditors (Raman, Khurana & Boone, 2008). However, most private firms do not have themselves reviewed by external auditors due to the increase costs (Luez, Hail & Burgstahler, 2006).

Corporate governance is considered as a means through which the interests of shareholders and other suppliers of funds are fulfilled.
Bebchuk and Weisbach (2009) in their research find out that economic crises are the main reasons why the role of shareholders in corporate governance systems is debatable as for some people giving more power to shareholders is a better choice because it safeguards their interests. While for others it is just welcoming more problems because activism of minority shareholders can serve problems in certain situations. Cohen, Ferrell and Bebchuk (2004) are of the view that more restrictions on shareholder power can reduce firm value as this causes managers in the firm to readily adopt practices like take over readiness.

Ownership concentration can also play a role in certain situations where agency problems are taken into consideration. A controlling shareholder can play either a positive or a negative role (Vishny, Shliefer & Morck, 1988). They play positive role by monitoring managerial actions and conversely can play negative role by using their controlling position for personal benefits. Hope, et al., (2009) are of the view that financial transparency and ownership can together have an interactive effect. Financial transparency can limit the negative role of controlling shareholders. In addition to this we also find literature suggesting that controlling shareholders can be advantageous in allowing long term relations between firms and external providers of funds by making negotiations easier and increasing business focus (Lele, Ellul & Guntay, 2007).

According to Bebczuk (2005), there are two main instruments that outsiders have to control the actions of people inside the firm. 1) regulatory and legal environment 2) corporate governance standards. Once these mechanisms are in place, outsiders can easily evaluate and challenge the actions of the firm. Thus we can infer that the firms with better governance are likely to perform better. A study of India done by Mohanty (2003) predicts such a relationship to exist. He suggests that companies with good governance perform better financially than those with poor governance. Similar results were found in Pakistan by examining 50 non financial listed firms where
corporate governance index (CGI) had close correlations to performance indicators like ROA and ROE (Tariq & Butt, 2008). However we also find some literature suggesting that the relationship between firm performance and corporate governance can be negative (Lehmann & Weignand, 2000) or none (Demsetz & Villalonga, 2001).

Durnev and Kim (2005) in consensus with this research objective predict that firms practice better corporate governance when they are in need of greater external financing, have better investment opportunities and higher concentration of ownership. Such firms in turn are valued higher. Their research is based on data from 27 countries. However, they also conclude that in countries with weak legal systems corporate governance is valued higher as in such cases governance practices attempt to compensate for the weak regulatory systems. The 3 factors external finance, investment opportunities and ownership concentration play important role in relation to governance. Durnev and Kim (2005) put the basis of the perception very simply. External finance matters as a company will be less likely to spit into a well from which it plans to drink. Investment opportunities matter because a company won’t commit crime if it has something of worth to lose and ownership concentration matters because a company won’t plan to steal from itself.

A large body of research suggests a close relationship between level of corporate governance and firm value. Black (2001) in his research on Russian firms is of the view that there exists a strong relationship between corporate governance index and share prices. 1 standard deviation increase in governance index increases firm value by 9% (Durnev & Kim, 2005). Similar results are found by Black, Jang and Kim (2006) who took a large sample of 525 Korean firms. They checked elements like board structure and found out that firms with 50% outside directors are valued higher. However they don’t find a close association between profitability and level of corporate governance. We also find evidence that more disclosure can lead to
higher value of firm as shown by Limpaphayom and Zhou (2007), Black, Jang, Kim and Park (2009) and Rachinsky (2007).

There is also some evidence of association between corporate policies and leverage of firm. There are mixed views in this regard. Arping and Sauter (2009) using a sample of Dutch firms find out that an improvement in corporate policies reduces agency conflict and in turn trims down level of leverage by reducing significance of debt as a disciplining instrument. Also, there is evidence that firms with lower leverage are more likely to disclose more (Berglof & Pajuste, 2005). Further, Fulghiere and Suominen (2008) suggest negative association between corporate governance and leverage implying that poor governance increases leverage. On the other hand, a contradicting view is that good corporate governance encourages managers to take risks and as a result leverage increases (Florakis & Ozkan, 2009) good corporate governance signals investors and lenders about better quality of firm thus reducing cost of debt and enhancing leverage (Klock, 2005).

Research also suggests a close relationship between external finance and disclosure quality of firms. Firms that are more transparent with less informational asymmetries can easily access external finance because when a firm is less opaque, there are fewer chances of moral hazards by firm insiders and firm quality can be easily determined (Mitton 2002, Palepu & Healy, 2001). Hyytinen and Pajarinen (2005) study Finnish firms and suggest a similar view. They predict that firms with high quality disclosure are the ones that grow and such a quality disclosure helps them to access more external finance which in turn makes such growth possible. In addition to this evidence by Seppanen (2000) also suggest such type of association to exist by employing a sample of 41 listed firms in Finland. He finds out that frequency and timing of accounting disclosure are considered really important by managers as means of communication between firms and investors and such firms differ in their external financing arrangements due to differences in various types of disclosures. In a
study of Czech firms Makhija and Patten (2004) also predict a positive relationship between extent of disclosure and external ownership. However, there are also costs associated with quality disclosure. Such costs can be direct (e.g. selecting a prestigious auditor) (Hyytinen & Takalo, 2002) or indirect (Healy & Palepu, 2001).

Accounting discretion as permitted by GAAP can be used in an efficient or an inefficient way. It allows for a certain amount of judgment while preparing financial statements. Such a discretion can be used in a constructive way for maximizing shareholder wealth or conversely in a negative way by opportunist managers. Most of the literature suggests an existence of second type of behavior (managerial opportunism) (Fields, 2001; Williams & Menon, 2004). Similarly, Brown, Rajgopal and Venkatachalam (2008) in their research find out a positive relationship between accounting discretion and poor quality governance. This shows when governance mechanisms are not properly intact; there are more chances of managerial opportunism leading to misuse of interest of shareholders.

Stulz, Doighe and Karyoli (2004) predict that better governance is an important driver in share price increase. Moreover Black, et al., (2006) in their study of Korean firms find evidence that governance is related to firm size, risk and equity, with larger riskier firms with greater equity finance needs being better governed. Further, improving upon our views of association between long term profitability and corporate governance they find out that more profitable firms are not well governed.

An important research done by Akhtarudin, Hossain, Hossain and Yao (2009) shed light upon disclosure quality in corporate governance and are of the view that board size and number of non-executive directors on board have positive relations with the disclosure quality and transparency of firms. They also suggest that the corporate governance rules should specify a specific number of independent directors that should be present on board so that corporate practices
could be improved. This practice will also help in improving the performance of firms as following a set system will give a proper direction to the operations of the firm. However, Palia (2001) and Bhagat and Black (2002) find out that the performance does not improve with the increase in level of outside directors on board. They find out no or negative relation between performance and independence.

Studying the corporate governance challenges faced by the South Eastern European countries (SEE) Babrika and Miclaus (2007) are of the view that there are serious problems when it comes to the implementation of codes of corporate governance. The rules in the codes are not mandatory as long as they become the listing requirements of stock exchange. Using a questionnaire addressing five important areas including rights of shareholders, disclosure and transparency, role of stakeholders, board and equal treatment of shareholders, they find serious problems with the role of stakeholder and transparency sector. Improvements in the implementation of the code can however help in signalling investors providing external finance easily.

The relation between corporate governance and external finance is well supported by research. Most of the existing literature including findings by Durnev and Kim (2005) suggest a similar view in consensus with this research that the level of corporate governance followed by firms can be used as a predictor for finding information about external finance. Corporate governance is an important factor and is not only related to performance and value of firms (Black, 2001, Limpaphayom & Zhou, 2007) but also leads to greater profitability and share price increase (Stulz, et al., 2004). Good governance also tends to reduce costs of debt and thus improves leverage (Klock, 2005). The significance of corporate governance for investors cannot be ignored and a large body of research findings form consensus that corporate governance is valued by investors as it helps to protect their rights (Bebchuk & Weisbach, 2009). Thus the relation between
corporate governance and accessing external finance is not unfound and it holds that companies practice good governance when they are intending to get more funds from investors.

**Methodology and data collection**

For analysing the relation between corporate governance and external finance in Pakistan, the study used information from 30 companies listed on the Karachi Stock Exchange. The study aims to attain the required objectives by taking these firms from the banking and financial sector. A time period of 5 years has been selected from year 2007 to 2011. The main source of information for finding out data on the required variables has been the annual reports of the companies that are available on the company sites. However, data about the market capitalization of the firms has been obtained from the web using brecorder.com.4

**Variable Formation**

As the study strives to find the relation between corporate governance and external finance, some key variables that determine the level of corporate governance and external finance are identified.

According to Javed and Iqbal, (2010) disclosure quality is one of the major determinants of corporate governance. A company should be transparent about all its activities so that uncertainties about future prospects can be minimized and the risks be reduced. In an attempt to find the level of disclosure and transparency the study identifies 6 important factors that can explain variations in this regard. These variables include board size, number of independent or nonexecutive directors on board, disclosure of remuneration committee, staff ownership information, disclosure of remuneration of CEO, board directors and other executives and disclosure of biographies of board members (Javed and Iqbal, 2010).

Board size gives information about the number of members on board (Akhtarudin et al., 2009). The information about this variable is taken from the annual reports of the companies. The statement of compliance with the code of corporate governance clearly states the number of directors on board.

The number of Ned’s is also stated in the annual reports of the companies in the statement of corporate compliance (Bhagat and Black, 2002; Palia, 2001). This information has been collected for all the companies in the sample by individually looking it up in the annual reports.

Disclosure of remuneration committee is provided in the annual reports under the company information section (Javed and Iqbal 2010). A value of 1 has been assigned if such a disclosure is made whereas as a value of 0 has been assigned if such a disclosure is not found.

Staff ownership information is provided in the annual reports under the categories of shareholder section (Javed and Iqbal 2010). For the purpose of collecting this data a value of 1 has been assigned if staff ownership is present in the company disclosed in the patterns of shareholding section and a value of 0 has been assigned if the staff and executives don’t have any ownership in the company.

Remuneration of CEO, directors and other executives should be clearly stated in the notes to financial statements (Javed and Iqbal 2010). A value of 1 has been allotted for the presence of this information while 0 values has been allotted for absence.

Biographies of board members are an important component of the annual report. However not all the companies in the sample have provided the biographies of their board members (Javed and Iqbal 2010). This information has also been collected on the basis of assigning 0 and 1 value for absence and presence of the information respectively.
The size of the companies in the sample has been calculated as the log of total assets (Black et al., 2006).

This research finds the relation of external finance with all the above-mentioned variables. External finance can be made available through the use of debt or equity. The study focuses on equity as a source of external finance (Makhija and Patten, 2004; Javed and Iqbal 2010). But as external finance cannot be measured directly as indicated by previous literature this research employs the use of log of percentage of shares not taken by top 5 shareholders multiplied by market capitalization of the firm as a measure of this variable. The percentage of shares not taken by top 5 shareholders has been calculated using information given in the pattern of shareholding in the annual reports. Market capitalization data for every year has been taken from data providing website.

Hypothesis

The main objective of this research is to find out whether there is some relation between corporate governance and external finance. Most of the previous literature has supported this view (Javed and Iqbal 2010; Kim and Durnev 2005). In order to validate this proposition using a set of different variables, this study aims to contribute towards the said view. The general belief is that companies are supposed to be practicing a good standard of corporate governance if they are in need of external finance. The following hypothesis has been tested to find such an association:

Ho: there is no relationship between good corporate governance and external finance.

H1: there is a relationship between good corporate governance and external finance.
In the process of finding an answer to the above core hypothesis we develop some sub hypotheses that help in validating the view.

**Sub hypothesis 1**

Board size is one of the important factors that need to be considered while checking the level of corporate governance. It is known that the larger the board the more are the chances of better corporate decisions as the level of independence increases with the size of the board. Thus board size serves as an important measure of the level of corporate governance and transparency. As it can be considered as an essential element for ensuring corporate governance and so effect external finance the study tested the following hypothesis:

H0: there is no relationship between board size and external finance  
H1: there is a relationship between board size and external finance

**Sub hypothesis 2**

The number of NED’s on the board directly notifies about the amount of independence on the board and so acts as an essential factor in determining the amount of corporate governance. The more there are independent directors on the board the more are chances of better decisions and governance. Its linkage to external finance is determined by the following hypothesis:

H0: there is no relationship between the number of NED’s and external finance  
H1: there is a relationship between the number of NED’s and external finance

**Sub hypothesis 3**

The presence of remuneration committee is necessary in a company and the company should disclose this information clearly
in the annual reports. Remuneration committee helps in determining the appropriate compensation packages for everyone providing services to the company. Such a disclosure helps fund providers in knowing the fact that there is someone responsible for the proper use of resources of the company and ensuring everyone their precise amount of compensation. As a result of this there are fewer chances of thefts and misuse of funds provided. In order to find an association between such a disclosure of remuneration committee and external finance the study aims to verify the following hypothesis in an attempt towards validating the relationship between corporate governance and external finance:

Ho: there is no relationship between disclosure of remuneration committee and external finance  
H1: there is a relationship between disclosure of remuneration committee and external finance.

**Sub hypothesis 4**

The exact amount of remuneration of the CEO, directors and other executives needs to be disclosed in the annual reports. This factor is used as a variable in the study for the fact that it gives information to the share holders that the upper management is getting its due share for working for the company and there is less probability that they will take any decisions for their personal benefits overlooking their responsibility toward the shareholders and members of the company. Thus it serves as a determinant of corporate governance. The following hypothesis has been used in this regard:

Ho: there is no relationship between disclosing remuneration of CEO, directors and other executives and the external finance  
H1: there is a relationship between disclosing remuneration of CEO, directors and other executives and the external finance
Sub hypothesis 5

Staff ownership serves as another important factor as it tells about the holdings of the employees of the company and their trading in the shares. A company follows corporate governance while giving the public information about staff ownership. The study uses the following hypothesis to validate its relationship to external finance:

Ho: there is no relationship between staff ownership and external finance

H1: there is a relationship between staff ownership and external finance

Sub hypothesis 6

Biographies of the board members should be disclosed according to the code of corporate governance. This is necessary as the public gets to know that the company has selected the right people for the right jobs. The appointed members have the desired qualification and ability to serve for the company. The company must disclose about the experience of the members in their fields and information about their independence. This ensures the investors that there are capable and competent people in the company on whom they can rely and who will take decisions in the best interests of the company and its members. The association of this factor of corporate governance and external finance has been checked through the following hypothesis:

Ho: there is no relationship between disclosing biographies of members of the board and external finance

H1: there is a relationship between disclosing biographies of members of the board and external finance

Sub hypothesis 7

Size plays an important role in the said study and is known to have important relations with external finance and the level of
corporate governance. Although there are mixed views in this regard but it is generally believed that a larger firm will adopt better governance and access more external finance. In order to confirm such findings the study employs size as an essential variable and tests the following hypothesis.

Ho: there is no relationship between size of a firm and external finance
H1: there is a relationship between size of a firm and external finance

In order to validate the focal relationship the study first attempts to confirm all the sub hypotheses that will lead towards finding the final conclusion. Using panel regression, the model given below has been tested.

\[ EF_i = \alpha + \beta_1BoaSz_i + \beta_2NED_i + \beta_3RemC_i + \beta_4RemB_i + \beta_5StaffOwn_i + \beta_6Bio_i + \beta_7Size_i + \varepsilon_i \]

Where \( EF_i \) is the external finance and is the dependent variable. It is measured by percentage of shares not owned by top 5 into market capitalization of the firm. The rest of the variables are described as under,

- \( BoaSz_i \) refers to the number of board members
- \( NED_i \) refers to the number of non executive directors on board
- \( RemC_i \) refers to the disclosing of remuneration committee
- \( RemB_i \) refers to disclosure of remuneration of CEO, directors and other executives
- \( StaffOwn_i \) refers to the staff member ownership
- \( Bio_i \) refers to disclosing the biographies of board members
- \( Size_i \) refers to the size of the firm
- \( \varepsilon_i \) is the error term

**Analysis**

For the purpose of analyzing the relationship between the corporate governance and the external finance accessed by a firm the study identified seven explanatory variables. The data of 30 companies spanning over 5 years has been used.
Summary Statistics

In terms of corporate governance, the data indicates that 89% of the sampled companies do not disclose directors’ biographies whereas only 11% companies disclose directors’ biographies. 37% companies do not disclose directors’ remuneration however 68% companies provide description of the directors’ remuneration. Moreover 86% of the sampled companies do not have a formal remuneration committee. Only 16% of the sampled companies have a proper remuneration committee for ensuring transparency in terms of director’s remuneration. Furthermore, 53% companies depict staff ownership and 43% depict greater proportion of other financing modes as compared to staff ownership. The empirical properties of other variables included in the study are given below in table 1.

Table 1:
Summary Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Skewness</th>
<th>Ex. kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Finance</td>
<td>8.673</td>
<td>9</td>
<td>1.033</td>
<td>-0.049</td>
<td>-0.786</td>
</tr>
<tr>
<td>Size</td>
<td>9.833</td>
<td>10</td>
<td>1.126</td>
<td>0.218</td>
<td>-0.778</td>
</tr>
<tr>
<td>Board size</td>
<td>7.887</td>
<td>8</td>
<td>1.612</td>
<td>-0.259</td>
<td>0.650</td>
</tr>
<tr>
<td>NED</td>
<td>5.993</td>
<td>6</td>
<td>1.866</td>
<td>-0.208</td>
<td>0.193</td>
</tr>
</tbody>
</table>

As clearly shown, size is showing the highest mean among all the variables followed by the mean for external finance, which is the dependent variable. The highest median can be observed in case of size. The table shows number of NED’s has the highest standard deviation followed by board size and size of the companies. The high standard deviation of size indicates that there are variations in the sizes of the companies selected in the sample and are not of the same size. Most of the variables in the data are showing negative skewness giving an indication that the data is concentrated toward the long left tails and show the possible effects of decrease in the variables. Almost all the variables in the data have a kurtosis less than 3 indicating flat distributions and the possibility of having less outlier.
Empirical Results

Table 2 below contains the empirical results of the study generated using External finance a dependent variable. Using a panel data of 5 years for 30 financial sector companies, four models have been employed including Pooled OLS, Fixed Effect Model, Random Effect Model and Weighted Least Square Model. For all the four models results have been presented in Table 2 below.

Table 2:
Empirical Results, Dependent variable: External Finance

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pooled OLS</th>
<th>Fixed Effect</th>
<th>Random Effect</th>
<th>Weighted Least Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>p-value</td>
<td>Coefficient</td>
<td>p-value</td>
</tr>
<tr>
<td>Size</td>
<td>0.5831</td>
<td>0.0000**</td>
<td>0.136</td>
<td>0.4771</td>
</tr>
<tr>
<td>Biographies of Board Members</td>
<td>0.1766</td>
<td>0.2251</td>
<td>0.0186</td>
<td>0.7546</td>
</tr>
<tr>
<td>Remuneration of Board Members</td>
<td>-0.0061</td>
<td>0.9800</td>
<td>0.0432</td>
<td>0.7942</td>
</tr>
<tr>
<td>Remuneration committee</td>
<td>0.2949</td>
<td>0.0806*</td>
<td>-0.0712</td>
<td>0.5842</td>
</tr>
<tr>
<td>Staff ownership</td>
<td>-0.2004</td>
<td>0.2978</td>
<td>-0.1602</td>
<td>0.5532</td>
</tr>
<tr>
<td>Board size</td>
<td>0.1988</td>
<td>0.0355**</td>
<td>0.2377</td>
<td>0.1372</td>
</tr>
<tr>
<td>NED</td>
<td>-0.0602</td>
<td>0.2411</td>
<td>-0.0146</td>
<td>0.8862</td>
</tr>
<tr>
<td>Durbin Watson</td>
<td>0.570840</td>
<td>1.0643</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.6112</td>
<td>0.8559</td>
<td>NA</td>
<td>0.8449</td>
</tr>
<tr>
<td>F-statistic (p-value)</td>
<td>32.0298 (2.50e-26***)</td>
<td>19.2815 (9.30e-34***)</td>
<td>110.5147 (3.05e-54***</td>
<td>9.0899 (0.2462)</td>
</tr>
<tr>
<td>White test of Heteroskedasticity (LM Test statistic (p-value))</td>
<td>30.9699 (0.4166)</td>
<td>6.8955 (2.6525e-014****)</td>
<td>115.5445 (3.05e-54***)</td>
<td></td>
</tr>
<tr>
<td>Breusch-Pagan test (Chi-Square test statistic (p-value))</td>
<td>75.4093 (3.8277e-018****)</td>
<td>115.5445 (3.05e-54***)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hausman test (Chi-Square test statistic (p-value))</td>
<td>9.1699 (0.0342)</td>
<td>115.5445 (3.05e-54***)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***Significant at 1% , **Significant at 5%, *Significant at 10%

The data has been tested for heteroskedasticity using white test (see Table 2). The insignificant results of white test proved the data to be homoscedastic. Likewise, the data has also been tested for the problem of autocorrelation using Durbin Watson test (see Table 2). The significant test results and Durbin Watson value of 0.57084 indicated the existence of autocorrelation problem in the data. Due to the problem of autocorrelation the results of the pooled OLS have been invalidated. Furthermore the results of panel diagnostics given
in Table 2 also nullify the pooled OLS results. This can be confirmed from the significant results of Chow test indicating superiority of fixed effect model over pooled OLS. Moreover the significant results of Breusch-Pagan test indicate dominance of Random effect model over Pooled OLS. However insignificant results of Hausman Test verify that GLS estimates are consistent and results of the random effect model are more reliable as compared to the results of fixed effect model. In addition to the Random effect model, Weighted Least Square model has also been employed depicting interesting and significant results. The results of the Random Effect model and Weighted Least Square are more consistent due to the fact that these models also resolve the issue of autocorrelation existing in the data.

The empirical findings of Random Effect, Pooled OLS and Weighted Least Square Model depict that in an attempt to find a relationship between corporate governance and external finance the board size of a company contributes significantly and positively. This implies that the larger the board size the better is the corporate governance and the easier it is for the company to access external finance as investors give value to good governance practices.

The sub hypothesis 2 has been checked by looking at the p-value for the number of NED’s on the Board. The relationship between external finance and number of NED’s is significant and negative as shown by the coefficient value given by the weighted Least Square Model. The result is contradictory to the literature, which suggests that more independent directors lead to better governance and as a result to easily accessing external finance. The reason for such a contradiction is that the sample includes companies from Pakistan where the legal and corporate system is not well developed nor is the Pakistani public acquainted with the system of governance. Thus the importance of NEDs is not well understood by the public and while presenting their finance to the companies they don’t value the presence of NEDs in their decisions about selecting the suitable
companies. The presence or absence of NEDs makes no difference to the public hence explaining our opposing results.

For the purpose verifying relationship of disclosure about remuneration committee and external finance sub hypothesis 3 has been checked. The p-value is 0.05 according to the Weighted Least Square results, which is less than α at 10% level of significance thus indicating a relationship between disclosure about remuneration committee and external finance. Moreover there is a positive relation. Disclosure about remuneration committee serves as an important factor as it ensures the investors that the company has a committee, which has the task of allocating adequate compensation packages for the employees of the company, and the employees do not need to misuse the funds provided by investors for personal benefits. In cases of misuse of funds by staff due to any reasons like low salaries or poor compensation packages, the remuneration committee can be held responsible. It also gives an idea to the investors that the company has appropriate systems of control and there is proper check and balance in every area of operations. Thus this factor contributes to major hypothesis of the study that better governance leads to easily accessing external finance.

The findings indicate that there is no relation between disclosure about remuneration of CEO and board members and the external finance accessed by a firm. This hypothesis is related to disclosing the exact amount of remuneration of board members. The results are not significant for the fact that in Pakistan the shareholders and investors as a whole are mostly not concerned about checking the exact amounts of remunerations of the executives and board members by referring to the notes to the financial statements. It shows that such a disclosure about remunerations does not serve as a factor while funds providers decide upon offering their finances to a specific company. Thus disclosure of remuneration of board members although being a determinant of good corporate governance does not have any relation with access to external finance by the company.
Disclosing staff ownership being a determinant of good governance has an insignificant relationship with access to external finance. Further the results suggested that the disclosure about biographies of board members does not play any role while accessing external finance. Providers of funds don’t see any difference between a company making such a disclosure and a company not making any disclosure about biographies of board members.

The p-value is less than α at 1% level of significance indicating the significant relationship, which has an important implication for the findings of the study as it, showed that as the size of the company increases, the need for external finance also increases. Both the Random Effect Model and Weighted Least Square Model categorize size as an important significant determinant of external finance. In an attempt to access more finance the company practices good governance. This is parallel to what the literature suggests, when the need for external finance increases, companies are expected to practice good governance.

The results of these sub hypothesizes contributed positively towards the core hypothesis. Out of the seven key variables determining good governance used in the sub hypothesizes, 4 determinants had significant relations with external finance. This indicates that more than half of the variables prove the relation between good governance and external finance. Furthermore the value of $R^2$ (84%) in Weighted Least Square Model indicated that good corporate governance play a major role for companies in accessing the sources of external financing which therefore concludes that there is a relationship between good corporate governance and external finance. Moreover the F-statistic value shows the fitness of the model and its overall significance. Thus the model used has important implications for contributing towards the existing literature by verifying relationships between level of governance and external finance.
Conclusion

The findings suggested that companies are expected to practice a good level of corporate governance when they need to access external finance. The results imply that if a company wants to attract people with funds to invest, it will have to ensure that it is good at following rules and procedures and will acknowledge the rights of its shareholders in future. The shareholders and investors see this as a guarantee and provide their finances without much stint. The major findings of the study are summarized below:

- In Pakistan although the corporate system is not well developed nor is the public much acquainted with it, still better governance procedures do play a role in regard of external financing.

- Furthermore as the size of board increases there is increased probability of independence on the board. There are more chances that the company will have a greater number of independent directors which is a sign of good governance. As a consequence of good governance external finance will be easier to access and thus external finance of the company increases.

- In addition it is imperative for a company intending to follow corporate governance in order to access external finance to make a disclosure about the remuneration committee in its annual report. This gives the providers of funds a positive view that the company has an appropriate system of control and has made some authority responsible for setting remuneration packages of its employees. This information contributes toward the positive image of the company as investors value good corporate governance and are more likely to invest their funds in the company.
The size of the company has also been found to play a role in the process of investigating the relations between external finance and good governance practices. A larger company needs more external finance and thus practice good governance standards in order to being able to so. Thus the larger the company is, the better the standard of corporate governance is and the more there is external finance. Moreover a large company has more chances of growth and needs more external finance and for that purpose it will practice good governance in order to attract investors. Smaller and newer companies on the other hand are more likely to access other informal means of finance as for accessing external means they have to ensure public and fund providers about their credibility.

Number of NED’s on board is another important determinant of corporate governance used in this study. The public here is not informed enough to know the importance of having independent directors on board nor does the standards of corporate governance give importance to this factor while evaluating companies. It does not specify any mandatory number of independent directors to be present on the board. Thus explaining the negative relation of number of NED’s with external finance.

The overall conclusion of the study is parallel to the literature. It suggests that companies do understand the importance of corporate governance while disclosing information about the company to investors. Companies that tend to generate finance externally are more transparent as they know that this practice plays a positive role in the process of accessing funds from investors. Following corporate governance standards is not only good for the proper functioning of the company but also improves the credibility of the company. In this modern age where investor protection is one of the key requirements of corporate world, following good corporate plays a vital role.
Investors are becoming more aware and knowledgeable and consider all important aspects about a company before offering their finance to them.

**Future Study Implications**

The given study has been undertaken with special reference to the banking and financial sector of Pakistan. The results may not apply to all sectors of Pakistan therefore future studies can be improved upon by taking into consideration other sectors of Karachi Stock Exchange. Secondly the study used data spanning over 5 years therefore additional research can be done by increasing the time period for analysis. Also, the data for corporate governance can be improved upon by incorporating more variables and thus increasing the scope of the study. Another important aspect of the study is that it has been undertaken for just Pakistan where the system of corporate governance is not so strong neither are the fund providers too acquainted with the notion, therefore the research perspective can be improved by taking into consideration markets of other countries and making a comparison so that the weaknesses in Pakistan’s market can be identified and improved upon.
References


DYNAMIC RELATIONSHIP BETWEEN INVESTMENT, EARNINGS AND DIVIDENDS: EVIDENCE FROM ENGINEERING SECTOR OF PAKISTAN

Ijaz Hussain¹ and Imtiaz Ahmad²

Abstract

This study examines the relationship among profit, investment and dividend decisions for the firms of engineering sector listed in Karachi Stock Exchange. Using the multivariate vector autoregressive model, granger causality and impulse response function, this study identifies the strong relationship among profit, dividend and investment. Investment and dividends have bi-directional causality while in case of investment and net profit causality runs from investment to profits. In case of dividends and profits, causality runs from dividends to net profit indicating the presence of information content of dividends. However, investment is the most important particularly with regard to its substantial and long lasting impact on profits and consequently on dividend decisions.

As far as allocation of profits towards investments and dividends are concerned, it is found that profits are allocated more towards paying dividends rather than making investments and most of the investments are made out of external financing. However, in view of relationship among investments, dividends and profits it is important to review decisions regarding making investment and dividends after four years and three years respectively.

Keywords: Dividend Decisions, Investment Decisions, Dynamic Relationship, Causality, Multivariate Vector Autoregressive Model, Impulse Response Function.

JEL Classification: G00

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Introduction

Investment, financing and dividend decisions are an integral part of corporate financial management policy. Investment decision requires an appropriate choice and combination of internal and external sources of finance, while decision regarding dividends involves about determining portion of profit to be distributed among shareholders consequently restricting the internal sources of finance. If the amount of dividend paid is larger, the residual funds retained for reinvestment purposes will be reduced and consequently the firm will have to depend upon alternative sources of long term finance like further issues of equity and/or debt capital to finance current and new projects. Earning is a main target and major source of internal funds. Therefore, for investment and dividends decisions, the internally generated funds i.e. profitability needs to be a top priority for firms. While making decisions about cash dividend, a firm may rely on the past earnings or the expected future earnings. Objective of firms’ investment is to enhance their future capacity of earnings (Bar-Yousef, Callen, & Livn, 1987) which in turn enables the firms to raise future dividend distributions to maximize shareholders wealth (DeFuscoa, Dunhamb, & Geppertc, 2007). Thus dividend distributions also signal about future earnings and motivate favorable stock price reactions (Kao & Wu, 1994) adding further to shareholders wealth in the form of capital gains. Consequently, the earnings, investment and cash dividends have causal relationship among them which has also some serious implications for firms’ capital structure. Objective of this study is to explore these causal relationships, identify their consequences and suggest some policy implications.

This study uses panel data of 35 firms of engineering sector listed on Karachi Stock Exchange of Pakistan for the period of 1999 to 2009. This paper identifies the dynamic relationships among investments, earnings and dividends using vector auto regression (VAR) model. In order to identify the relationship among investment, dividends and earnings, granger causality and Wald restriction test is
used, which helps to identify whether past value of one variable can provide statistically significant future values of other variable or not i.e. one variable granger causes other or not. We use impulse response function and variance decomposition to test long term relationship and measure the strength of each variable in predicting other variables.

This study identifies the strong relationship among profit, dividend and investment. Investment and dividends have bi-directional causality while in case of investment and net profit causality runs from investment to profits. In case of dividends and profits, causality runs from dividends to net profit indicating the presence of information content of dividends. However, investment is the most important particularly with regard to its substantial and long lasting impact on profits and consequently on dividend decisions.

As far as allocation of profits towards investments and dividends are concerned, it is found that profits are allocated more towards paying dividends rather than making investments and most of the investments are made out of external financing. However, in view of relationship among investments, dividends and profits it is important to review decisions regarding making investment and dividends after four years and three years respectively.

The rest of the paper is organized as follows: section 2 reviews literature. Section 3 identifies data sources, research design and methodology. Section 4 presents results and discussion. Section 5 gives conclusion and policy inferences and recommendations.

**Review of the Literature:**

Several studies are documented regarding relationship between investments, dividends and profits. These studies are mostly related to bi-variate and tri-variate analysis.
Relationship between Dividends and Earnings/profits

A firm that earns profit faces the choice of allocation of its profits between dividends and reinvestment. Miller and Modigliani (1961) theorem says that investment policies are the main determinants of firm value and therefore dividend payments must be made out of the earnings in excess of the required capital expenditure. However, dividend payments are necessary and at least current dividends must be maintained (Lintner, 1956). According to Linter dividends must be paid out of earnings and not from residual earnings.

In order to find out the relationship between dividend payouts and only permanent part of earnings or stable earnings, earnings were decomposed into permanent and transitory parts by Lee (1996) in a time series analysis. The study of dividends in relation to only permanent part of earnings supported the notion that dividends show strong behavior towards the permanent change in earnings- which is also called permanent earning hypothesis in literature. On the other hand there is a hypothesis called partial adjustment hypothesis which states that managers have a target dividend and they partially adjust their dividend to that target dividend over time (Lee, 1996). They only make adjustments if they have reasonable indications to believe that the change in dividends will not have to diminish in near future. These inferences were made using vector auto regressive models and co-integration regression and suggested that permanent adjustment hypothesis is true only in case where target dividends are in particular proportion of permanent income rather than current earnings.

Fama and Babiak (1968), Pettit (1972) and Watts (1973) view earnings as the possible causation of dividends particularly in case of micro behavior of individual firms. Their analysis and finding support the notion that managers increase dividend payments only to increase in unanticipated and non-transitory changes in earnings, which is also propagated by Lintner (1956). According to the theory of dividend stabilization in practice most of the firms adopt stable dividend policies.
that do not adjust their dividend policies straight away when their earnings change (Lintner, 1956) because firms are reluctant to decrease dividends thus they only increase dividends when they have reasonable evidence that the earnings will increase in future with stability (Miller and Modigliani, 1961).

Higher dividend payouts are associated with higher future earnings. Higher dividends and higher future earnings relationship was found in a company level or individual analysis. Zhou and Ruland, (2006) analyzed this relationship under various conditions and results have strong association between dividend payouts and future earnings for example in case of different measures of earnings, after controlling mean reversion in earnings, different sub-periods, taking into account different industry effects and impact of share repurchases. Zhou and Ruland, (2006) also tested Free Cash Flow Theory; relationship between payouts and earnings was found stronger for low growth companies or for companies which have tendency towards over-investment.

Future earning information plays an important role in the determination of dividend policy. Hsu et al. (1998) tested the impact of future earning information on dividend policy by decomposing earnings into two parts namely transitory and permanent earnings and found that permanent part of earnings plays an important role in explaining the dividend behavior. Further dividend adjustment model performed better in case when target dividends were taken as proportion to the permanent component of earnings. Supporting the hypothesis of information content of dividends Nissim and Ziv (2001) investigated the relationship between dividends and future earnings or abnormal earnings. Following the change in dividends, earnings were found positively related to dividend for two years while controlling the expected change in earnings. Further dividends were also positively related to profitability when measured in terms of future earnings and future expected earnings and results get stronger in case of abnormal earnings. And the above findings were non-
symmetric in the sense that dividend increases had relationship with profitability, even up to four proceeding years: but dividend decreases did not have any relationship with the profitability. However, Nissim and Ziv (2001) attributed this non-symmetry of results to accounting conservatism.

There exist some theoretical arguments about the importance of taxation and firm prospects as determinants of dividend policy. Sarig (2004) used vector auto regression models, and found that increase in profitability lead to increased number of repurchases and then payouts but over time increase in taxation on capital gains has increased the dividend payouts and decreased number of repurchases. Sarig (2004) supported that investment decisions guide the way to dividend policies and opposite is not true. Information content of dividends was also supported by him i.e. corporate payouts show the increase in future profitability. Many diagnostics checks like re-estimation with shorter sample and larger sample and controlled legal changes yielded same results that show that results were quite strong.

Baumol et al. (1970) find insignificant relationship of reinvestment of corporate earnings with future corporate earnings. However, Bar-Yousef et al.(1987) identified that corporate earnings have considerable impact on future investment of the firm but reverse is not possible. In addition, in case earnings provide an indication of the firm’s capability to locate and exploit profitable investment opportunities, shareholder would like to forgo dividends and prefer reinvestment, thus implying that dividend payments will not affect investments. Kao and Wu (1994) established a positive relationship between dividend payments and corporate earnings. Mozes and Rapaccioli (1998), Nissim and Ziv (2001) conclude that large increases in dividend payments lead to a decrease in future earnings and minor increase leads to an increase in future earnings. Nissim and Ziv (2001) point out that dividend changes are directly related to future increase in earnings for the firms listed on NYSE. Farslo et al. (2004) conclude that there is no long run relationship between dividends and earnings.
Time series analysis of dividends and earnings was used on Swiss companies data from 1982-2003, in which Linter model and Chi-square test showed that dividends depend more on current growth. Signaling model shows that companies which with positive increase in dividends normally have higher average earnings and firms which have dividend cuts are not in better conditions. So it supported the signaling content of dividends and showed that managers only cut dividends when they think they don’t have sufficient earnings and increase dividends only when they think that their earnings have sufficiently or permanently increased (Stacescu, 2006). Therefore, price volatility had negative relationship with dividends because price volatility increases the unpredictability of earnings and thus reduces the chances of dividend payouts due to unpredictable future.

**Relationship between Dividend and Investment Decisions**

Miller and Modigliani (1961) gave an idea that dividend policy of a firm does not affect its value in a perfect capital market. The underlying reason for this irrelevance of dividend policy and firm value is that stockholder can reproduce any desired stream of payments by purchasing and selling equity.

Morgan and Pierre (1978) tested the idea related to independence of investment and dividend payouts developed by Modigliani and Miller (1961) who replicated the work of Fama (1974). Morgan & Pierre (1978) not only replicated the work of Fama (1968) but they also tested long-run objectives of investment rates and payouts, another addition was testing the impact of parent companies on the payout decisions of subsidiaries. However, they restricted their study to only transitory changes in investments and found consistent result with the optimal investment behavior. Further they establish that in Canadian firms’ dividend payout policies are not affected by parent companies particularly due to same level of access to capital market and payouts does not restrict the availability of funds for investment.
Recent studies have found that there is a relationship between the investment, dividend and financing decisions of a firm i.e. they go against the independence principal. Independence principal says that there is no relationship between the financing, investing and dividend decision of a firm. De Fuscoa et al (2007) find that firms with larger investment opportunities show larger positive shocks in dividends. He used vector autoregressive models; variance decompositions and impulse response function to find the short term and long term interdependencies on investment, dividend and financing decisions. On the other hand investment decreases mildly to the positive shocks in dividends. Results also went against the independence principal hypothesis as dividend and investment both show log term effect on each other and thus has bi-directional interdependence.

Jensen (1986) presented the overinvestment theory which states that instead of paying dividends managers may take on negative NPV projects in order to increase the size of the firm. Larger firms are considered to be more prestigious by the managers and expect to get more income from the larger firms. But this does not go well with the interest of the shareholders. Black (1976) argues that dividend payments can reduce the problem of over-investment, due to reduction in free cash flows for making investments. Analysis of Chinese firms indicates the relationship between dividend payments and net operating cash flow of the firms; however, firms with little investment opportunities have plenty of cash flow (Liu and Hu, 2005). Bhaduri and Durai (2006) verified that in emerging economy with imperfect market, the dividends and investment decisions are taken jointly.

**Relationship between Investment and Earnings**

It is well documented in literature that investment decisions related to capital expenditures and research and development (R&D) expenses, have long-term impact on the business of a company. Most of the studies are in agreement that investments have positive impact on earnings (Cheng and Farber, 2008; McNichols and Stubben, 2008;
Bergstresser et al. 2006). Dividends policy sometimes signals investors about the long term earning behavior of firms (Ganging, 2000). According to Bar-Yosef et al (1987) relationship between a firm’s earnings and investment revealed that decisions regarding investment will be affected significantly by earnings but not the other way around. Taking into consideration both long term and short term numerals for internal funds and fixed investments into consideration at the same time, they found that there exists only uni-directional relationship from fixed investments to cash flows (Mahdavi et al, 1994).

In addition to previous studies, the (Lee & Nohel, 1997) study finds that there is bi-directional relationship between investments and earnings. In general, if expected earnings or permanent earnings increase, then firm is inclined to make additional investment, this is because permanent earnings are taken as annuitized NPV (Black and Scholes, 1973; Ohlson and Zhang, 1998). Thus in this case the earnings have positive impact on investments, and if earnings are of high quality or earnings are of permanent in nature then firm usually increase investments. However, if earnings are only transitory there are no corresponding changes in investment levels.

**Data, Research Design and Methodology**

This study uses a panel of 35 companies of engineering sector of Pakistan listed at Karachi Stock Exchange for the time period 1999-09. There were total 38 listed firms in engineering sector; three firms were excluded due to non-availability of complete series for the period. All firms are included whether they have paid or have not paid dividends over the whole time period in order to avoid sample bias in the data. The analysis of investment, dividends and profits require fairly large number of firms that had to have declared dividends for the period under study. The KSE listed engineering firms are selected because, owning to industrial growth during 1999-2009, these firms declared large amounts of dividends and undertook massive investments. However, the findings cannot be applied to the firms in
other sectors of the economy because underlying structure of other firms significantly differs from those of the engineering sector.

Table 1 shows that on average total amount of dividends paid during the time period of 1999-09 were Rs. 82.80 million while net profit and real investment Rs. 131.09 million and Rs. 211.35 million respectively. This shows that on average net profit for the engineering sector was reasonably greater than dividends and investments were on average substantially greater than both net profit and dividends. While values of median and maximum value made the picture more clear because 50% of the total amount of dividends is less than only Rs. 7.4 million and maximum value is Rs. 3756.9 million. Similarly median for net profit is Rs. 7.8 million and maximum net profit is Rs. 3488.9 million while median investment is Rs. 54.3 million and maximum investment amount is Rs. 3268 million.

Investment have the higher amount of standard deviation showing that firms substantially differ in terms of investment compared to average investment in the engineering industry. Similarly firms have considerably high standard deviations in dividends and net profit.

All three variables are positively skewed and the values greater than one is showing that data are highly skewed. However skewness in dividends is more than investment and net profit. While all have value of kurtosis greater than 3 showing that all have higher and sharper central peak and longer and fatter tails compared to a normal distribution.

As discussed earlier our purpose is to identify the interdependence and dynamics of investment, earnings and dividend behavior. So we use Vector Multivariate Autoregressive Model (VAR) in order to uncover the level of interdependence and causality. The main advantage of VAR model is that we need not to classify variables as endogenous or exogenous as it treats all variables as endogenous variables. They allow a variable to depend upon lags of its own and combination all other variables included in the VAR structure so they
Table 1: Summary Statistics

<table>
<thead>
<tr>
<th></th>
<th>DIV (Rs. Millions)</th>
<th>NP (Rs. Millions)</th>
<th>INV (Rs. Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>82.80</td>
<td>131.09</td>
<td>211.36</td>
</tr>
<tr>
<td>Median</td>
<td>7.40</td>
<td>7.80</td>
<td>54.30</td>
</tr>
<tr>
<td>Maximum</td>
<td>3756.90</td>
<td>3488.90</td>
<td>3268.00</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.00</td>
<td>-833.40</td>
<td>-1510.00</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>260.75</td>
<td>414.42</td>
<td>492.31</td>
</tr>
<tr>
<td>Skewness</td>
<td>9.02</td>
<td>4.09</td>
<td>3.04</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>116.50</td>
<td>24.79</td>
<td>16.29</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>192049.60</td>
<td>7875.66</td>
<td>3106.58</td>
</tr>
<tr>
<td>Probability</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Sum</td>
<td>28898.10</td>
<td>45751.00</td>
<td>73763.40</td>
</tr>
<tr>
<td>Sum Sq. Dev.</td>
<td>23661077</td>
<td>59765441</td>
<td>84345972</td>
</tr>
</tbody>
</table>

Source: State Bank of Pakistan and Authors’ Calculations

are flexible and allow covering more features of data. One of the main advantages of the VAR approach to modeling and forecasting is that since only lagged variables are used on the right hand side, forecasts of the future values of the dependent variables can be calculated using only information from within the system. VAR is n-equation and n-variable linear model and as discussed earlier the n-variables included in the VAR structure depend upon their own lags and lags of n-1 variables. So in case of our data, the VAR structure will look like following:

\[
\begin{align*}
\text{INV}_t &= \beta_1 + \beta_2 \text{NP}_{t-1} + \cdots + \beta_{11} \text{INV}_{t-11} + \epsilon_t + \alpha_1 \text{INV}_{t-1} + \cdots + \alpha_{11} \text{INV}_{t-11} + \gamma_4 \text{DIV}_{t-4} + \cdots + \gamma_{13} \text{DIV}_{t-13} + \mu_t \quad - - - - \quad (1) \\
\text{NP}_t &= \beta_2 + \beta_3 \text{INV}_{t-1} + \cdots + \beta_{12} \text{NP}_{t-12} + \epsilon_t + \alpha_2 \text{NP}_{t-1} + \cdots + \alpha_{12} \text{NP}_{t-12} + \gamma_5 \text{DIV}_{t-5} + \cdots + \gamma_{14} \text{DIV}_{t-14} + \mu_t \quad - - - - \quad (2) \\
\text{DIV}_t &= \beta_4 + \beta_5 \text{INV}_{t-1} + \cdots + \beta_{13} \text{NP}_{t-13} + \epsilon_t + \alpha_3 \text{NP}_{t-1} + \cdots + \alpha_{13} \text{NP}_{t-13} + \gamma_6 \text{DIV}_{t-6} + \cdots + \gamma_{15} \text{DIV}_{t-15} + \mu_t \quad - - - - \quad (3)
\end{align*}
\]

Where \( \mu_t \) is a white noise disturbance term with \( E(\mu_t) = 0, (i = 1, 2, 3) \), \( E(\mu_t u_t) = 0 \) or even more precisely as

\[
\begin{align*}
\gamma_1 &= \beta_0 + \beta_1 y_{t-1} + \beta_2 y_{t-2} + \cdots + \beta_{11} y_{t-11} + \mu_t \quad - - - - \quad (4) \\
g \times 1 &= g \times 1 \quad g \times g \times 1 = g \times g \times 1
\end{align*}
\]
In above equation $\mathbf{y}_t^d$ is the vector of dependent variables where $g = 3$ variables in the system. Extending the model to the case where there are $k$ lags of each variable in each equation is also easily accomplished using this notation.

In case of economic and finance theories it’s hardly possible that these provide the information about lags to be used in the VAR system or in other words how much time a variable takes to work through the system. In such cases, there are two methods through which lag length is selected i.e. imposing restrictions on the coefficients of lags and using the information criterion. In our case, we will use information criterion such as Akaike information criterion, Schwarz information criterion or Hannan-Quinn information criterion. However, violation of $COV(u_t, u_{t-s}) = E(u_t u_{t-s}) = 0$ for all $t \neq s$ is often observed in time series data and panel data. To test serial autocorrelation in the data Breusch–Godfrey serial correlation Lagrange multiplier test is used which has null hypothesis that there is no serial correlation of any order up to $k$ (lags) used in the test. This test is used to identify such number of lag at which there is no serial autocorrelation.

In case of our VAR structure, no clear interpretation can be made until we impose restrictions according to the theoretical background. For example, if we want to test that current value of investment is affected by the history of dividends and not the other way around then we will have to put restrictions that $\gamma_{11} = \gamma_{12} \cdots \gamma_{1k} = \beta_{21} = \beta_{22} = \cdots \beta_{2k} = 0$ Table 3.2 shows some of the possible restrictions and their explanation. VAR fitted on the differences of the data (not co-integrated) cannot be used for testing Granger Causality; however, for purposes other than granger causality such VAR model can be used.
Table 2:  
Test of Granger Causality and Restrictions on VAR Models  
Hypothesis Implied Restriction

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Hypothesis</th>
<th>Implied Restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lags of (NP_a) do not explain current (INV_{it})</td>
<td>(\alpha_{11} = \alpha_{12} = \cdots = \alpha_{1k} = 0)</td>
</tr>
<tr>
<td>2</td>
<td>Lags of (DIV_{it}) do not explain current (INV_{it})</td>
<td>(\gamma_{11} = \gamma_{12} = \cdots = \gamma_{1k} = 0)</td>
</tr>
<tr>
<td>3</td>
<td>Lags of (INV_{it}) do not explain current (INV_{it})</td>
<td>(\beta_{11} = \beta_{12} = \cdots = \beta_{1k} = 0)</td>
</tr>
<tr>
<td>4</td>
<td>Lags of (NP_a) do not explain current (NP_a)</td>
<td>(\alpha_{21} = \alpha_{22} = \cdots = \alpha_{2k} = 0)</td>
</tr>
<tr>
<td>5</td>
<td>Lags of (DIV_{it}) do not explain current (NP_a)</td>
<td>(\gamma_{21} = \gamma_{22} = \cdots = \gamma_{2k} = 0)</td>
</tr>
<tr>
<td>6</td>
<td>Lags of (INV_{it}) do not explain current (NP_a)</td>
<td>(\beta_{21} = \beta_{22} = \cdots = \beta_{2k} = 0)</td>
</tr>
<tr>
<td>7</td>
<td>Lags of (NP_a) do not explain current (DIV_{it})</td>
<td>(\alpha_{31} = \alpha_{32} = \cdots = \alpha_{3k} = 0)</td>
</tr>
<tr>
<td>8</td>
<td>Lags of (DIV_{it}) do not explain current (DIV_{it})</td>
<td>(\gamma_{31} = \gamma_{32} = \cdots = \gamma_{3k} = 0)</td>
</tr>
<tr>
<td>9</td>
<td>Lags of (INV_{it}) do not explain current (DIV_{it})</td>
<td>(\beta_{31} = \beta_{32} = \cdots = \beta_{3k} = 0)</td>
</tr>
</tbody>
</table>

As explained earlier, the approach to VAR modeling makes it a theoretical model and thus it’s difficult to interpret because it becomes difficult to explain the effect of lags on the future values of the variables included in the model due to changing values of lags and interdependence of the variables. Therefore, impulse response function and variance decomposition minimizes this problem. Impulse responses depict the degree of responsiveness of the dependent variables in the VAR to the shocks to each of the variables. So, for each variable from each equation separately, a unit shock is introduced to the error, and the effects upon the VAR system (all variables included except exogenous) over time are noted. There is a bit different method of examining VAR system dynamics called variance decomposition. It is more reasonable due to the fact that it shows the proportion of movements in the dependent variable due to its own shock and shock of other variables. And thus allow comparison because shock in one variable not only affects itself, but also to all other variables in the VAR. Variance decomposition finds out how
much steps-ahead (time) forecast error variance of a given variable is explained by innovations to each explanatory variable for time period t=1,2,3,.......

### Empirical Results and Discussion

In order to determine integration, we use Fisher based Augmented Dickey Fuller ADF as panel unit root test, the null hypothesis of which is non-stationary. Because VAR can be applied only on stationary series, therefore, we have generated Fisher based ADF for all three variables. Table 3 shows results of Fisher based ADF test at levels with trend and intercept. It shows that all variables are stationary, investment and dividends are stationary at 1% level of significance while net profit is stationary at 5% level of significance.

#### Table 3:

**Test of Stationarity**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Method</th>
<th>Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INV</td>
<td>Fisher-ADF</td>
<td>107.947</td>
<td>0.0024</td>
</tr>
<tr>
<td>NP</td>
<td>Fisher-ADF</td>
<td>97.7655</td>
<td>0.0159</td>
</tr>
<tr>
<td>DIV</td>
<td>Fisher-ADF</td>
<td>104.744</td>
<td>0.0028</td>
</tr>
</tbody>
</table>

Table 4 shows lags suggested by different criterions, Hannan-Quinn Information Criterion and Schwarz Information Criterion the appropriate lag length is 2 and the number of lags that minimizes the value of Akaike Information criterion and all other criterions is 4.

Nevertheless, in order to remove possible serial autocorrelation we have applied the LM test for serial independence for \( k = 1 \ldots 12 \). This serial correlation is removed (at least at the 5% sig. level) if we increase the maximum lag length to \( p = 6 \) as shown in Table 5. Thus there will be \( (1 + 4 \times 3) = 13 \) variables in each equation.
Results of restrictions on Vector Autoregressive Model show bi-directional relationship between dividend and net profit as we can reject null hypothesis of DIV does not granger cause NP and NP does not granger cause DIV even at 1% level of significance. This is because dividends are paid out of available cash flows which increase
with increase in net profits therefore net profit causes dividends, on the other hand, dividends are paid only when management is certain about generating future profits thus dividends bear information content.

The results of restrictions on Vector Autoregressive Model (Table 6) are showing bi-directional relationship between dividend and net profit as we can reject null hypothesis of DIV does not granger cause NP and NP does not granger cause DIV even at 1% level of significance. This is because dividends are paid out of available cash flows which increase with increase in net profits therefore net profit causes dividends, on the other hand dividends are paid only when management is certain about generating future profits thus dividends bear information content and can be used as prediction for increase in future profitability.

Table 6:
Panel Causality Test

<table>
<thead>
<tr>
<th>Null-Hypothesis</th>
<th>Test-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIV does not granger cause NP</td>
<td>F-statistic</td>
<td>6.6972</td>
</tr>
<tr>
<td></td>
<td>Chi-square</td>
<td>40.1833</td>
</tr>
<tr>
<td>NP does not granger cause DIV</td>
<td>F-statistic</td>
<td>6.1886</td>
</tr>
<tr>
<td></td>
<td>Chi-square</td>
<td>32.1219</td>
</tr>
<tr>
<td>INV does not granger cause DIV</td>
<td>F-statistic</td>
<td>2.8667</td>
</tr>
<tr>
<td></td>
<td>Chi-square</td>
<td>17.2003</td>
</tr>
<tr>
<td>DIV does not granger cause INV</td>
<td>F-statistic</td>
<td>0.4508</td>
</tr>
<tr>
<td></td>
<td>Chi-square</td>
<td>2.7050</td>
</tr>
<tr>
<td>NP does not granger cause INV</td>
<td>F-statistic</td>
<td>1.5720</td>
</tr>
<tr>
<td></td>
<td>Chi-square</td>
<td>9.4320</td>
</tr>
<tr>
<td>INV does not granger cause NP</td>
<td>F-statistic</td>
<td>1.8150</td>
</tr>
<tr>
<td></td>
<td>Chi-square</td>
<td>10.8003</td>
</tr>
</tbody>
</table>

As we can reject null hypothesis of INV does not granger cause DIV at 5% level of significance, so investment does granger cause dividends but reverse is not true. With increase in dividends, there remain fewer funds for investment but the reason behind this uni-directional relationship is that in our case firms give more importance to investment which is in most availed for external resources
rather than internal, this increase in investment causes increase in net profit and then effect is channeled to dividends. But with making dividend payments, investments are not much affected because effects on investment are dominated by external finances.

Net profit does not Granger cause investment because we are unable to reject null hypothesis even at 10% level of significance. As discussed above, this is because firms have more focus on getting external finances and are not able to use their own profits as reinvestments. While investment also does not cause net profit as we are unable to reject null hypothesis (INV does granger cause DIV).

In the following paragraphs, impulse responses and variance decompositions of each variable are generated separately against other variables in the VAR system. While computing the impulse responses and variance decompositions, there were few available options regarding order of variables because movements in any of the variables are likely to follow or precede other variables, which depend upon the policy and/or importance given by firms mainly to either investment or dividend payments. However, impulse responses are computed considering investment as leading variable and net profit and dividends as following variables respectively. Other orders are given in appendix for comparison purpose and are not discussed here because there was not much impact of change in Cholesky Ordering because residuals were uncorrelated from estimated equations.

Figure 1 shows responses of net profit and investment to one standard deviation (Rs. 260.75 million) positive change in dividends. Investment decreases by maximum of Rs. 66.81 million in third year due to one standard deviation positive shock in dividends and remains below base line up to fourth time period. One reason to this is that with increase in dividends firms are left with less internal funds for investment and thus investment decreases to increase in dividends. It converges to base line in fourth time period after which it becomes unstable and works out of the system. These results are
contrary to the independence principal, that there is no relationship between the financing, investing and dividend decision of a firm. Our results are consistent with those in DeFusco et al (2007) identify that larger investment opportunities show larger positive shocks in dividends but investment decreases mildly to the positive shocks in dividends.

**Figure 1:**
*Responses of Investment and Net profit to Dividend*

![Graph showing responses of investment and net profit to dividends.]

**Table: 7**
*Response of INV and Net Profit to Dividends*

<table>
<thead>
<tr>
<th>Period</th>
<th>INV</th>
<th>NP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>2</td>
<td>-2.3323</td>
<td>29.3165</td>
</tr>
<tr>
<td>3</td>
<td>-66.8146</td>
<td>49.3856</td>
</tr>
<tr>
<td>4</td>
<td>4.2047</td>
<td>178.6627</td>
</tr>
<tr>
<td>5</td>
<td>443.7347</td>
<td>152.0317</td>
</tr>
<tr>
<td>6</td>
<td>124.0684</td>
<td>-79.7203</td>
</tr>
<tr>
<td>7</td>
<td>-48.70254</td>
<td>355.6854</td>
</tr>
<tr>
<td>8</td>
<td>327.7517</td>
<td>-72.4748</td>
</tr>
<tr>
<td>9</td>
<td>-873.0362</td>
<td>-586.2458</td>
</tr>
<tr>
<td>10</td>
<td>-887.8190</td>
<td>160.6446</td>
</tr>
</tbody>
</table>
Responses of net profit show that with one standard deviation (Rs. 260.75 million) positive change in dividends, net profit increases and remain above base line till fifth time period. After fourth time period it starts converging to base line; however, it reaches to maximum of Rs. 178.66 Million in fourth time period, which is higher than the average net profit in the whole industry. In Figure 1 the movement of net profit above the base line shows that dividends have the information content i.e. increase in dividends can be used as the indication to increase in future profits. But net profit becomes unstable after fifth year and works out of the system. It supports information content of dividends and study of Nissim and Ziv (2001) because following the change in dividends, earnings are found to have positive relationship with dividends for at least four years after which these become unstable.

**Figure 2:**
Responses of Investment and Dividend to Net profit

![Graph showing responses of investment and dividend to net profit](image)

**Table 8**
Response of DIV and investment to NP

<table>
<thead>
<tr>
<th>Period</th>
<th>DIV</th>
<th>INV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>112.7396</td>
<td>0.0000</td>
</tr>
<tr>
<td>2</td>
<td>134.2860</td>
<td>84.6291</td>
</tr>
<tr>
<td>3</td>
<td>21.6785</td>
<td>19.5593</td>
</tr>
<tr>
<td>4</td>
<td>103.4550</td>
<td>60.2856</td>
</tr>
<tr>
<td>5</td>
<td>-68.6356</td>
<td>190.9397</td>
</tr>
<tr>
<td>6</td>
<td>-181.7011</td>
<td>393.8494</td>
</tr>
<tr>
<td>7</td>
<td>167.0524</td>
<td>16.7921</td>
</tr>
<tr>
<td>8</td>
<td>216.2716</td>
<td>-12.4695</td>
</tr>
<tr>
<td>9</td>
<td>93.9066</td>
<td>-243.2851</td>
</tr>
<tr>
<td>10</td>
<td>943.6131</td>
<td>-688.8798</td>
</tr>
</tbody>
</table>
Figure 2 shows responses of investment and dividend to one positive standard deviation shock in net profit. Result show that with one positive shock in net profit (Rs. 414.41 million) both dividends and investment increases and dividends starts converging to their base line after fourth time period while investment starts coming back to its base line after sixth time period and dividend in eighth time period and after that both move away and downwards from base line.

The above graph shows that the firms increase their dividends with increase in net profit but they do not pay much out of current earnings because the value of responses of dividends starts converging after fourth time period. Dividends achieve maximum value of Rs. 134.28 million in year two, which is higher than the industry average of Rs. 82.80 million. However, after fourth time period, dividends are also not stable as because they are moving away from the base line showing that dividends are not entirely controlled through net profit after fourth year. These results are consistent with the findings in Fama and Babiak (1968), Pettit (1972) and Watts (1973) i.e. causation runs from earnings to dividends and the notion that managers increase dividend payments only to increase in unanticipated and non-transitory change in earnings, which is also promulgated by Lintner (1956). It also supports study of Lintner (1956) and theory of dividend stabilization according to which in practice most of firms adopt stable dividend policies that do not adjust their dividend policies straight away when their earnings change.

Figure 3:
Responses of Net profit and Dividend to Investment
Table 9
Response of Net Profit and Dividends to Investment

<table>
<thead>
<tr>
<th>Period</th>
<th>NP</th>
<th>INV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.369306</td>
<td>13.40004</td>
</tr>
<tr>
<td>2</td>
<td>-34.23256</td>
<td>-8.718078</td>
</tr>
<tr>
<td>3</td>
<td>35.91891</td>
<td>-33.44870</td>
</tr>
<tr>
<td>4</td>
<td>-119.7205</td>
<td>-130.7263</td>
</tr>
<tr>
<td>5</td>
<td>-294.8229</td>
<td>-319.0318</td>
</tr>
<tr>
<td>6</td>
<td>-377.1354</td>
<td>-313.2153</td>
</tr>
<tr>
<td>7</td>
<td>-480.7489</td>
<td>-110.3561</td>
</tr>
<tr>
<td>8</td>
<td>-627.9697</td>
<td>-22.36166</td>
</tr>
<tr>
<td>9</td>
<td>-775.0477</td>
<td>250.0488</td>
</tr>
<tr>
<td>10</td>
<td>-738.1443</td>
<td>167.4167</td>
</tr>
</tbody>
</table>

Figure 4:
Variance Decomposition of Dividend
Investments also increase due to one positive shock in net profits and achieve maximum of Rs. 84.63 million in second year and converge in third time period after which it becomes unstable. One important finding is that apportionment of investment out of net profits is less than dividends. Investments are also not stabilized through net profits because entire investments are not financed only through net profits there are other external financing options also. On the other hand, investments also depend upon the growth opportunities and upcoming projects. Our results of casualty in Table 6 and impulse response function in figure 2 contrary to that in Bar-Yosef et al., (1987) and Mahdavi et al. (1994) which suggested that there exist unidirectional relationship from real investments to earnings. However the reason for no causality between investment and earnings is the working of Pecking Order theory, according to which investment decisions deeply affect debt ratio and profitability of a firm. But in our case investments are causing rapid increase in financing cost and thus debt ratio due to shortage of internal funds and therefore, earnings are not strong enough to affect investments.

Figure 3 shows responses of net profit and dividend to one positive standard deviation shock in investment (Rs. 211.35 million). The results show that with one positive shock in investment dividends increases to only Rs.13.40 million and after which it starts decreasing and remain below base line till eighth time period. The reason behind this behavior is the residual dividend policy i.e. firms only pay dividends after retaining sufficient funds for the investments in upcoming projects. After only two years dividends becomes unstable showing that companies don’t dividends policy is not being controlled by investment policy.

On the other hand, net profit shows only Rs. 3.081 million increase in first year and then show a decrease of Rs. 39.70 million then increase of Rs. 29.67 million after which it decreases and this negative effect does not die down.
In case of response of both dividends and net profit to investment, responses diverge immensely after two year in case of dividends and after 3 years in case of net profits. Although in case responses dividends to investment, dividends converge in eighth time period but there is huge gap of divergence. Therefore, it is better to review policy regarding making investments every three years despite this there is only mild effect of investment on dividend policy and profits in first three years but after three years condition get worse.

For dividends, it is clear that it depends mainly on its own variance, around 80% of the variance is coming from pure shock to dividends itself, independent of the investment and net profit. As far as investment and net profit is concerned, net profit is more important as variance due to net profit is more than investment i.e. approximately 30% but variance due to investment starts increasing after 3 three time periods and outperforms net profit after 4 time periods. But in long run, own variance of dividends dominates both investments and dividends.

**Figure 5:**
*Variance Decomposition of Investment*

![Variance Decomposition of INV](image)
Investment depends mainly on its own error terms up to the ninth time period after which dividends gain more importance and outperform investment after this point. Variance due to dividends increases above 50% and variance due to investment itself comes below 40%. However, dividends do not have much part in the variance of investments, even though they remain below net profit up to the 4th time period after which they start gaining importance in the variance of investments.

From variance decomposition of net profit, it is clear that it mainly depends upon its own error terms and which dominated the contribution of investments and dividends. However, after the third and fourth time period, investment starts gaining importance more and more in the variance of net profits and outperforms dividends after the fourth and net profits after the seventh time period. After this point, variance due to investments becomes more than 50% and variance due to net profit itself is around 30% while remaining 20% variance is due to dividends (Figure 7).

If we look at variance decompositions of investment, net profit, and dividends at a time then it is clear that in the long run investments are of more importance than net profit and dividends in the variance of net profit.
the overall policy regarding profits and dividends due to strength of its impact on other variables.

Conclusions and Policy Implications

Our results are indicative of strong relationship among net profit, investment and dividend decisions. Dividend and net profit have bi-directional relationship signifying the information content of dividends and showing that with increase in net profit firms are inclined to pay more dividends. While investment causes dividends but reverse is not true. Investment also causes net profit but this relationship is not so strong and net profit does not cause investment in turn. Investment and dividends both increase for a reasonable long time due to positive change in net profit i.e. for more than 5 years, our result also support the dividend adjustment hypothesis that firms do not pay much out of current profits rather dividend payouts increase more afterwards to positive change in profits when managers believe that their earnings have risen permanently.

It is interesting to note the relationship between investment and net profit. Increases in investment does not result in positive trend in net profit in first two time periods, it starts increasing after second time period and it increases and crosses the base line in third time period. Our study also supports information content of dividends; increase in dividend is good indication of future growth in earnings.

However, keeping in view relationship between investment, dividends and profits, it is suggested to review the policy regarding dividends every four years, while policy regarding investment needs serious consideration because it does not have significant effect on net profits and dividends.

Based on result of variance decompositions of investment, net profit and dividends, it is suggested that in the long run investments are of great importance in the overall policy regarding profits and dividends. This is so because investment has greater contribution in the determination of net profits and policy regarding dividends.
References


Appendix
EMPIRICAL INVESTIGATION OF THE RELATIONSHIP BETWEEN EXCHANGE RATE MOVEMENTS AND STOCK MARKET VOLATILITY IN THE CONTEXT OF PAKISTAN

Kalim Ullah Bhat¹ and Syed Zulfiqar Ali Shah²

Abstract

The link between exchange rate fluctuations PKR/USD and volatility of stock returns of KSE 100 is analysed in the current study. Many statistical tests are conducted to study the relationship very effectively. ARCH GARCH models, Unit Root test, Johansen Co-integration test and Granger causality test are applied to have an empirical investigation of the relationship. Heteroskedasticity ARCH test shows that there is autocorrelation in the data series, and then volatility has been extracted by using ARCH, GARCH, EGARCH and TGARCH. Unit root test is applied on the generated series which shows that both series are stationary at level. Co-integration test reveals that both variables are co-integrated to each other. Granger causality test also show bidirectional causal relationship between the two variables. It is concluded in the findings that there is flow of information between two markets; investors can use information of the one market to predict about the other.

Keywords: ARCH GARCH models, Stock Returns, Exchange Rates
JEL Classification: E 420

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²- Dept of Finance, International Islamic University Islamabad, Pakistan.
Empirical Investigation of the Relationship... Research

Introduction

There are many factors which affect the volatility of stock market like dividends, enterprise performance, gross domestic product, employment, exchange rate etc. Kurihara (2006). However the effect of exchanges rate on stock market is much focused by the researchers, as it is supported by the theoretical justification and empirical evidences that movement of exchange rate and volatility in the stock market affect the economy of a country. Especially when we talk about emerging economies, it is observed that emerging economies are much attractive for investment community. Emerging markets are considered more volatile than developed markets, and according to risk and return theory investors can reap more returns in developing countries than developed. Many investors diversify their investment towards emerging economies in order to minimize risk. If it is found that stock prices affect exchanges rates, the regularity authority may take effective measures to stabilize the stock market. On the other hand, relation of both markets can help investors to forecast about one market by using information of the other.

Relation between stock prices and exchange rates are presented in two ways in theories. Dornbusch and Fischer (1980) the flow-oriented exchange rate model, it reveals that fluctuations in exchange rate affect stock markets. Branson and Frankel (1983) proposed a second approach which is called stock-oriented exchange rate model. It states that increase in stock price gives rise to exchange rates. Increase in stock prices attract foreign investors and they invest more in stock markets. Where they are supposed to buy local currency hence demand for local currency increases which causes appreciation in the local currency.

This study is going to empirically investigate either there is a link amid volatility in the stock market and fluctuations in the exchange rates in the context of Pakistan or not. There are contradictory results regarding link amid stock volatility and fluctuations in exchange rates...
which varies on the basis of time and region. The empirical investigation of relation between exchanges rates and stock market in the emerging economy, like Pakistan, helps us to know either flow-oriented model or stock-oriented model which are empirically proven in other countries are applicable in a developing country like Pakistan or not.

In current study, Weekly data of 15 years is used from 1997 to 2013 and all necessary tests are applied to reach at the accuracy of the results. As Karachi stock exchange represents the economy of the country so the study helps us to know how stock volatility and exchange rates movement reacts to each other, and as a result regulatory authorities and investors can take effective decisions.

After going through the literature, it is found while investigating the relationship that researchers have not much considered ARCH and GARCH models in the developing countries like Pakistan. ARCH, GARCH, EGARCH and TGARCH are used to overcome the factors like clustering volatility, leverage effect and asymmetrical response. So there exists a need to examine the link between exchange rate movements and stock volatility in the region by using these models. Theoretically, it will make addition in the existing literature. Besides theoretical contribution, the study will also make practical contribution the regulatory authority which can take effective decisions accordingly to stabilize stock markets as well as appreciate local currency. If relationship is found between two markets, the investors can use information of one market to forecast about the other.

The study is organized as follows: the first phase includes introduction, in the second phase related literature is discussed. In the third and fourth phase, methodology and empirical results are discussed. The fifth phase includes conclusion of the study.
Literature Review

On the basis of economic theory, it is hypothesized that there is possible interaction between stock prices and exchange rates. The flow oriented exchange model proposed by Dornbusch and Fisher (1980) states that stock prices movements are caused by exchange rate movements. In the language of Granger Causality, we can say that unidirectional causality stock price movements are caused by fluctuation in exchange rate. The model is based on the view on which there is consensus in the literature that stock price represents the present value of firms’ future expected cash flows so it reveals that phenomena which is responsible for change in the firm’s cash flows would be seen in the firm’s stock price if market is efficient as suggested by the efficient market hypothesis.

A contrasting view of flow oriented exchange rate model is that exchange rate movements are caused by change in stock prices, which is proposed by Branson and Frankel (1983). It gives a contrasting view to the flow oriented exchange model which states that firms earning are influenced by change in currency rates hence change in stock price is caused by exchange rate movements. Stock oriented model suggests that change is caused in stock prices due to change in exchange rate through transactions of capital account. To what extent stock market effects currency market depend upon things like stock market liquidity and segmentation. For instance, illiquidity in the stock market makes it difficult for investors to buy and sell stock in minimum time bound, while on the other hand segmented markets have some unfavourable characteristics like foreign currency risk, high transaction cost, government constraints and market imperfections.

Relationship of uncertainty shocks with economic activity is widely analyzed in the literature and there is found a general consensus that positive economic shock affects economic activity negatively Bernanke (1983) and Kimball (1990), which ultimately have influence on stock market and exchange rates. Financial crises in 2007 are
considered the biggest financial crisis after 1930s recession; the stock market has been affected adversely due to these crises. To investigate the impact of crises on stock markets, few studies assess its affect on stock market like Olowe (2009) it was concluded in the study that stock returns and its volatility is free from the severity of this crisis. The link amid fluctuations of the exchange rate movements and volatility in the stock market has been worth mentioning in the research field. There is also a need to examine relationship in the context of Pakistan to come with results to check either our results are consistent with previous studies conducted in the different countries at different time periods.

Causal relationship has been examined to check relationship between stock exchange and stock volatility in macroeconomic perspective. Islam and Murinde (1997) conducted a study which concludes that appreciation of currency helps the stocks to perform well and it shows poor performance when currency depreciates. Nyamute (1998) noted a link amid returns of stock and fluctuations of exchange rate where coefficient is found positive; he studied the stock prices and other financial variables like exchange rates, inflation rates, interest rates and money supply during his studies which he conducted in Kenya. Chiang, Yang, and Wang (2000) noted a positive link amid stock prices and fluctuations in exchange rates in the Asian countries. Sabri (2004) investigate the relation in the emerging countries to check either exchange rate affects stock prices in emerging countries or not. It was concluded that there was very strong positive correlation amid volatility in the stock market and exchange rate movements in the emerging stock markets. Dornbusch (1976) and Boyer (1977) presented models that changes occur in exchange rates and stock prices have relation with the capital movements in the country. So we can say reduction in domestic wealth subsequently reduce the demand for money and interest rates, which is self-evident because it leads to capital outflow and currency depreciation.
There is a support of empirical literature which is in favour of argument that there is no significant link of stock volatility with fluctuations in exchange rate. Chiang, Yang, and Wang (1992) conducted a study to examine the link of returns of stock with fluctuations in exchange rate in the United States; they came to conclusion that there is no long-term association of movements between exchange rates and stock volatility. Chiang et al (1998) studied a link amid stock prices and fluctuations in exchange rates in Hong Kong, Singapore, Thailand and Malaysia. Nieh and Lee (2001) conducted studies in the G-7 countries where study did not prove any casual link amid the variables; study also could not find any long-term link between fluctuations in the currency prices and volatility in the stock market. Nandha and Smyth (2003) examined a link amid two variables change in currency prices and volatility in the stock market rate in the context of Malaysia. The empirical investigation did not reveal a significant long-term link between amid fluctuations in currency prices and volatility in the stock market. Ozair (2006) investigated a connecting link amid fluctuations in currency prices and volatility in the stock market, it was concluded that no long-term link amid variables exists in the USA; He used data from 1960 to 2004 on quarterly basis to study the variables.

Literature also supports a link between fluctuations of currency prices and volatility in the stock market with negative coefficient. According to Ma and Kao (1990) there can be both negative and positive effects of currency appreciation on stock prices for an import-dominant country and export-dominant country. Granger, Huang and Yang (2000) conducted a research to study the bivariate link amid fluctuations in currency prices and volatility in the stock market. It was examined that either the depreciation in currency leads to reduce stock prices or decline in the stock prices leads to depreciation of the currency exchange. The results showed that there is negative causality relationship between exchange rates and stock prices. The data of Asian countries was used in this study. Soenen and Hanniger (1988) noted that there is strong negative relationship.
between U.S dollar value and stock prices. The data used in the study was monthly data on stock prices and effective exchange rates from 1980-86. Clive W.J Granger, Bwo-Nung Huang, and Chin Wei Yang (1998) conducted study in the Taiwan where daily data was used from 1986 to 1997. The results concluded that there is negative casual relationship between stock prices and exchange rates in Taiwan.

So, it is found that there is a theoretical support for casual relationship, empirical literature also prove relationship between two variables exchange rate and stock prices in many developed countries. So the study is going to empirically investigate relationship between exchange rates and stock prices in the context of Pakistan, which will help us to understand if our results are consistent with the results of previous studies conducted in different countries at different time periods. As a result study may suggest to act accordingly to stabilize stock markets.

**Hypotheses**

H0: There is a no causal relationship between stock market volatility and exchange rate movements.

H1: There is a causal relationship between stock market volatility and exchange rate movements.

**Data and Methodology**

The relationship between exchange rates and stock volatility is empirically investigated in this research paper. Stock returns of KSE 100 index and PKR/USD dollar exchange rates are examined in the study. Data has been taken for the time period of 13 years from 1997 to 2013, the data period in the study would have been extended beyond 13 years to cover all the shocks which may have taken place during that time period but the data was only available from 1997 and that is why the time period considered in the study is from 1997 to 2013. Data for stock prices would be considered closing price of stock and for exchange rate movements it would be change in the
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Pakistani Rupee/US Dollar. Natural logarithm of stock prices as well as exchange rates is taken. The values obtained as a result of natural logarithm are investigated empirically to study the relationship. The source of date for stock prices is (www.yahoofinance.com). The data for exchange rate movement is collected from the website (www.oanda.com).

Models used
Mishra, Swain and Malhotra (2007) investigated the relationship between stock volatility and exchange rate movements by adopting ARCH, GARCH and EGARCH. Dr. Agrawal (2010) studied the relationship in the India by using Unit root and Gaunger causality test. This study will adopt ARCH and GARCH models to examine the relationship.

Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock Returns</td>
<td>Weekly stock returns of KSE 100</td>
<td>Ln(Pt)/(Pt-1)</td>
</tr>
<tr>
<td>Exchange Rates</td>
<td>Weekly exchange rates of PKR/USD</td>
<td>Ln(Et)/(Et-1)</td>
</tr>
</tbody>
</table>

Where Pt is the stock price at the week t and Et is the exchange rate at week t.

Data Analysis techniques
Many statistical tests are applied to reach the accuracy of results. ARCH heteroskedasticity test is used in the study to check either ARCH effect exists or not in the data. The study used ARCH GARCH family models to extract volatility series, and then the volatility series are run in unit root test to check stationary of the data. To find out co-integration between the variables Johnsen Co-integration test is applied on volatility series of both variables. To check whether there is casual relationship between two variables Granger causality test is applied.

Arch effect

<table>
<thead>
<tr>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heteroskedasticity Test: ARCH for exchange rates</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F-statistic</th>
<th>Prob. F(5,807)</th>
<th>0.0000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obs*R-squared</td>
<td>Prob. Chi-Square(5)</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

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Data series of foreign exchange rate is passed through heteroskedasticity ARCH test to check whether there is Arch effect or not. The results show that ARCH effect exists in the data as F-statistics probability is less than 0.05. It means that null hypothesis is rejected that there is no arch effect and alternative is accepted that there is arch effect in the series of exchange rates.

**Heteroskedasticity Test: ARCH for stock returns**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>27.26830</td>
<td>0.0000</td>
</tr>
<tr>
<td>Obs*R-squared</td>
<td>117.5032</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Data series of stock returns is passed through heteroskedasticity ARCH test to check whether there is Arch effect or not. The results show that ARCH effect exists in the data as F-statistics probability is less than 0.05. It means that null hypothesis is rejected that there is no arch effect and alternative is accepted that there is arch effect in the series of stock returns.

**Extraction of volatility by using ARCH GARCH models for exchange rates**

<table>
<thead>
<tr>
<th></th>
<th>ARCH</th>
<th>GARCH</th>
<th>TGARCH</th>
<th>EGARCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akaike info criterion</td>
<td>-7.381005</td>
<td>-7.589361</td>
<td>-7.587675</td>
<td>-7.609654</td>
</tr>
<tr>
<td>Schwarz criterion</td>
<td>-7.357989</td>
<td>-7.560591</td>
<td>-7.553150</td>
<td>-7.575129</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.033848</td>
<td>-0.01541</td>
<td>-0.014203</td>
<td>-0.015738</td>
</tr>
</tbody>
</table>

ARCH, GARCH, EGARCH AND TGARCH is used to analyze which is most appropriate model to extract volatility of the data series of exchange rates. The analysis is made on the basis of Akaike info criterion, Schwarz criterion, Adjusted R-squared. Model having least Akaike info criterion and Schwartz criterion is used to extract volatility series. The above mentioned table shows that EGARCH has least
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Akaike info and Schwarz criterion so volatility is extracted for the series of exchange rates by using EGARCH.

**Extraction of volatility by using ARCH GARCH models for stock returns**

<table>
<thead>
<tr>
<th></th>
<th>ARCH</th>
<th>GARCH</th>
<th>TGARCH</th>
<th>EGARCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akaike info criterion</td>
<td>-3.887729</td>
<td>3.956935</td>
<td>-3.963128</td>
<td>-3.961755</td>
</tr>
<tr>
<td>Schwarz criterion</td>
<td>-3.864713</td>
<td>3.928165</td>
<td>-3.928604</td>
<td>-3.927230</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.020569</td>
<td>0.030017</td>
<td>0.028314</td>
<td>0.027849</td>
</tr>
</tbody>
</table>

ARCH GARCH EGARH and TGARCH is used to analyze which is most appropriate model to extract volatility of the data series of stock returns. The above mentioned table shows that TGARCH has least Akaike info and Schwarz criterion so volatility is extracted for the series of stock returns by using TGARCH.

**Unit Root Test**

Null Hypothesis: FX2 has a unit root
Exogenous: Constant
Lag Length: 4 (Automatic - based on SIC, maxlag=20)

<table>
<thead>
<tr>
<th></th>
<th>t-Statistic</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augmented Dickey-Fuller test statistic</td>
<td>-9.156815</td>
<td>0.0000</td>
</tr>
<tr>
<td>Test critical values:</td>
<td>1% level</td>
<td>-3.438168</td>
</tr>
<tr>
<td></td>
<td>5% level</td>
<td>-2.864881</td>
</tr>
<tr>
<td></td>
<td>10% level</td>
<td>-2.568603</td>
</tr>
</tbody>
</table>

To check the stationary of extracted series of exchange rate volatility unit root test is applied at level. It shows that ADF is greater than critical value at one percent significant level and null hypothesis is rejected, so exchange rate volatility series is found stationary at level.

PAKISTAN BUSINESS REVIEW JAN 2015
Null Hypothesis: KSE2 has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=20)

<table>
<thead>
<tr>
<th>t-Statistic</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augmented Dickey-Fuller test statistic</td>
<td>-5.910368</td>
</tr>
<tr>
<td>Test critical values:</td>
<td></td>
</tr>
<tr>
<td>1% level</td>
<td>-3.438139</td>
</tr>
<tr>
<td>5% level</td>
<td>-2.86868</td>
</tr>
<tr>
<td>10% level</td>
<td>-2.568596</td>
</tr>
</tbody>
</table>

To check the stationary of extracted series of stock volatility unit root test is applied at level. It shows that ADF is greater than critical value at one percent significant level and null hypothesis is rejected, so exchange rate volatility series is found stationary at level.

**Johnsen Co-integration test**

Unrestricted Co-integration Rank Test (Trace)

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Trace Statistic</th>
<th>0.05 Critical Value</th>
<th>Prob.**</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.110400</td>
<td>128.9295</td>
<td>15.49471</td>
<td>0.0001</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>0.040748</td>
<td>33.82231</td>
<td>3.841466</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Trace test indicates 2 co-integrating eqn(s) at the 0.05 level

The Co-integration test is applied to know either there are co-integration equations between the variables or not. Trace statistics is greater than critical value at significant level which reveals that variables are Co-integrated to each other. There are two co-integrating equations between the variables.

**Ganger Causality Test**

Pairwise Granger Causality Test

| Lags: 2 |
|-------------------|---|---|---|
| Null Hypothesis: | Obs | F-Statistic | Prob. |
| KSE2 does not Granger Cause FX2 | 816 | 11.9022 | 8.E-06 |
| FX2 does not Granger Cause KSE2 | 6.13340 | 0.0023 |
Ganger Causality test is used to check the casual relationship between the variables, whether there is casual relationship between two variables or not. The results of the test show that there is a casual relationship between the variables. The null hypotheses KSE2 does not ganger cause FX2 and FX2 does not granger causes KSE2 are rejected. It is concluded that there is bidirectional casual relationship between two variables.

Discussion

First auto correlation was checked by Heteroskedasticity ARCH test and then data was made amenable by using ARCH GARCH model by extracting volatility. Mishra swain and Malhotra (2007) adopted the ARCH GARCH models to extract volatility. The co-integration is conducted between the volatility of stock returns and exchange rates, where it is found that there are two co-integration results between two variables which is consistent with some previous studies, like Mishra Swain and Malhotra (2007) conducted the studies in India and found co-integration equation between the variables. To find out casual relationship between variables, the Ganger causality test is conducted, which shows that both variables have casual relationships with each other which. The results of the current study are consistent with some previous studies like; Dr. Sarbapriya (2012) conducted the Ganger study in India and found that there is casual relationship between stock prices and exchange rates in India and Singapore.

Conclusion

The evidence of bidirectional relationship between volatility of stock prices and exchange rates has been found in the study. It is also suggested in the findings that both variables move in the same direction, results support the long run relationship of both variables. The bidirectional causality between the variables proves that there is information flow between two markets and they are integrated with
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each other. Findings of the study reveal that investor can use information of one market to predict something about the other. Regulatory authority can also play its role to stable one market like stock market to appreciate exchange rates.

Recommendations

The findings of the study can help both regulatory authority and investors in decision making. Regulatory authority can play their role in the stock market development by devising effective policies, these policies should be in the favor of investors which would attract investors and will have consequently positive effect on stock market. As study proves there is causal link between volatility of stock returns and exchange rate hence development of stock market will play its role for stability of exchange rates. The study can also help foreign investors to take the volatility of stock market into consideration while decision making to invest in their concerned economies because stock volatility cause change in exchange rates so investors can also anticipate their exchange risk on the basis of volatility of stock returns.
References


Yahoo Finance: [www.yahoofinance.com](http://www.yahoofinance.com)

www.oanda.com/convert/fxhistory
THE EFFECTIVENESS OF SUPPORT POLICIES FOR SMES IN PAKISTAN: A STUDY OF KARACHI BASED SMES

Mustaghis-ur-Rahman¹, Roger R. Stough² and Tariq Jalees³

Abstract

Pakistan’s economy is based on SMEs and there is a strong realization of the importance of such enterprises in the country. The support systems for the SMEs are in place in Pakistan for years. However, there is a general perception that these systems are inadequate. Hence, effectiveness of the support systems needs to be evaluated by gauging the satisfaction level of entrepreneurs as no significant research has been conducted in this area in the country.

This research is descriptive-cum explanatory in nature. A mixed of sampling technique have been used to have a representative sample size from 2,463 registered SMEs with the four industrial districts of Karachi. The survey of the population has been carried out with a five point Likert scale to gauge the satisfactory level of the entrepreneurs for the support policies available to them. The result of this research reveals that the satisfaction level of SMEs’ entrepreneurs is low.

Based on the findings of this research, areas of the existing support policies can be improved to make SMEs more productive.

Keywords: Small and Medium Enterprises, Support Systems, Socio-economic Development, Entrepreneurship

JEL Classification: L000

¹-Indus University, Karachi, Pakistan
²-George Mason University, Northern Virginia, USA
³-PAF-KEIT, Karachi, Pakistan
Introduction

In the recent years, small and medium enterprises (SMEs) have received much attention of policy makers and researchers. SMEs have been viewed as an important means for achieving economic development through job creation and accelerating the pace of economic activities in many countries of the world (Kongolo, 2010). In the developed countries, they are considered as the facilitator for maintaining the momentum of industrial development through change and innovation by involving human capital for productive engagement. As Schumpeter (1947) observed that the entrepreneurs are the driving force for creating change and innovation in an economy. Despite the fact that SMEs consist of the majority of enterprises and share substantial percentage of GDPs and in employment in the developing and developed countries, they lag behind the large enterprises and seek support of governments for their operations and growth.

Nevertheless, SMEs are considered to be the engines of prosperity for the large majority of people in the developing, emerging and developed countries alike. The basis of this consideration is that the prosperity of a nation is linked to its overall social development with a focus on disadvantaged groups (UN 1995). The USA and other developed countries established various policies, acts and authorities to support and facilitate small businesses in their countries. On the other hand, in the developing countries, the ‘trickle down’ economic development model remained popular until the late 1980s but had little success in delivering sustained development (Derby, 2009). The failure of “trickle down” has given way to the participatory development model which advocates the inclusion of all segments of society into

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1- The USA established the SBA in 1953 and various other supporting small business acts and amendments, such as: the Small Business Act; the Small Business Investment Act of 1958; and major small business policies enacted and applied from 1977 to 2001 in the USA. See for detail the chapter “Entrepreneurship and Small Business Policy from Carter to Clinton” by Linda Le in the book “Public Policy in an Entrepreneurial Economy: creating the conditions for business growth” edited by , Acs and Stough
economic activities (Makumbe, 1996). For the proliferation of SMEs with well regulated and helpful support systems, the developing countries have the potential to enhance the effectiveness of the participatory development model. The examples of Taiwan and China, where 97 to 99% firms are SMEs, are much relevant here as these two countries are pre-dominantly SME-based economies. At the same time, Pakistan shares many common characteristics with Taiwan and China, such as: the three are Asian countries and they have the legacies of monarchies/feudalism and colonial past. Besides, they also got their independence as a democratic country in the late 1940s and have a large SME population. Taiwan has achieved the status of an industrialized advanced country (IAC), while China is attaining the position of newly industrialized country (NIC). Yet Pakistan is still struggling to get on the trajectory to development.

Given in the above backdrop, this study investigates the effectiveness level of the support systems available to formally established SMEs’ entrepreneurs in Pakistan. Knowing the answer of the questions raised in this research is also important as gap of knowledge exists in this emerging field of entrepreneurship in the country.

The Paper comprises of six sections. Section one introduces the study while section two includes, research problem, research question and objective of the study. Section three is literature review on the subject and section four describes the research methodology applied while section five includes data analysis and findings and section six is on discussion and conclusion of the study.

**Research problem, question, and objective**

As discussed above, economic development is very much linked to the people’s involvement in entrepreneurial activities. Despite, in the recent years, some initiatives undertaken by the government of Pakistan to support SMEs through small medium enterprise development authority (SMEDA)\(^2\) and other agencies, the  

\(^2\) SMEDA was established in 1998 under the Ministry of Industries, Government of Pakistan as a facilitative body to give support to the SMEs and promote their interest.
results of SME performances are not satisfactory (Berry, 1998). Bhutta, Rana and Asad (2007) have observed that the performance of SME sector in Pakistan is still not up to the mark. They are of the view that the agencies formed and the policy interventions put in place to facilitate SMEs are not bearing fruits. Hence, SMEs need supportive environment to help them become more productive to achieve the goal of improved socio-economic condition of the population in Pakistan (SME Business Support Fund, 2011). Though, the support environment to the SMEs is considered important in Pakistan, it is imperative to find the answers of the question: whether sufficient supportive environment is available to the SMEs in Pakistan to facilitate reaching their potentials? The answer to this question will be sought with an objective to evaluate the satisfaction levels of the SMEs’ entrepreneurs for the available support systems in the country.

Theoretical grounding

In Pakistan, SMEDA (2007) defines SMEs on the criteria of employment and investment. The higher limit of employment for the small enterprises is 99 persons and paid up capital not exceeding 20 million ($2.36 million), while medium enterprises’ maximum limit of employment is 250 persons with the higher limit of an investment is Rs. 25 million ($2.917 million).

Generally, the success of a small enterprise is that it starts small but grows gradually and becomes large and productive (Hart, 2003). A different view of the explanation of small enterprises comes from Linda Le; she observes that “small enterprises are businesses that are not novel in their conception and are not quickly expanding in size or market influence. These enterprises do not radically alter, or replace the industries in which they operate, but can make incremental advancements and changes to their industries by building on existing market structures” (Le, 2008 p30). There could well be a debate on Le’s articulation over whether small enterprises can be ‘novel’ or not in their conception, but there can be little argument that small enterprises have an important role in the economic activities of a society (Kongolo, 2010); further they are also promoters of equitable market
The Effectiveness of the Support Policies

representation for disadvantaged groups. At the same time, SMEs themselves need support and a favorable state policy to survive and grow. As in 1953 even in the developed country like USA, the Small Business Administration (SBA) was established with a purpose to “aid, counsel, assist and protect, insofar as possible, the interests of small business concerns while also ensuring that small business received a ‘fair portion’ of government contracts” (Le, 2008 p31). In the context of developing countries, UN agencies and charity foundations like Ford Foundation provided financial and technical support to the Asian and Latin American countries in 1950s to make small enterprises more productive (Levitski, 1996). The different views presented by Hart (2003) and Le (2008) reflect the productive and non productive types of entrepreneurship respectively.

The challenges faced by the small and medium firms are of almost the same nature both in the developed and developing countries across the world. Generally, they are deficient in having updated technology, modern machineries, proper management systems and supportive regulatory environment. However, these weaknesses of SMEs are generally misperceived for their sizes. On the basis of this assumption, the SMEs further face difficulties in procuring finances and quality human resources (Chaminade and Vang, 2007). As a result, SMEs further lack qualified human resources, relatively poor managerial skills, and face difficulties in accessing strategic information. While all these are considered to be the important ingredients for a firm to become more innovative in their operations and development. Further due to the late beneficiaries of the technological breakthrough they become the follower of the large enterprises even in the indigenous and emerging market (Levy, 1994).

4- The USA established the SBA in 1953 and various other supporting small business acts and amendments, such as: the Small Business Act; the Small Business Investment Act of 1958; and major small business policies enacted and applied from 1977 to 2001 in the USA. See for detail the chapter “Entrepreneurship and Small Business Policy from Carter to Clinton” by Linda Le in the book “Public Policy in an Entrepreneurial Economy: creating the conditions for business growth” edited by , Acs and Stough.

5- Ford Foundation was the first ever charity foundation led by a corporate organization extended technical and financial support to the small indigenous enterprises in South Asia and Latin America
The realization of these short comings by the international support agencies and governments in various countries has led to create and expand support mechanism for the SMEs. The support to SMEs by the donor agencies and governments were with an objective to promote indigenous entrepreneurship to enable the local people to get the benefit of the economic development in the country and also for mainstreaming economic activities. For the technical support, the UN agencies sent their experts to assist SMEs’ development to the developing countries in 1950’s and after. In the same period the first major financial grant (for five years) was given to the Stanford Research Institute by the Ford Foundation to analyze the policies and recommend the suitable programs in Latin American and Asian countries for the promotion of small enterprises. As a result of this five year grant “Indian model” was recommended by the Stanford researchers. This model was basically a set of recommendations to provide support to the Indian government in their small enterprises support and development in India. This was the start of support provision to small enterprises (Levitski, 1996). However, the support and helping SMEs have been, some time, seen as pampering the small firms and making them stagnant and more dependent on the subsidies from the government or support agencies.

In the Pakistani context, SMEDA and SME Banks in 1998, and a number of international agencies/organizations such as WB, ADB, ILO and the UNDP have begun support initiatives in the SME sector within the last ten years (Bhatta, Rana & Asad, 2007).

It is important to understand that, ceteris paribus, the better the support systems available to small enterprises more will be effectiveness of SMEs in creating economic opportunities in a society. As Acs (2008; 17) asks “How can policy makers maintain and accelerate the continued transition towards a more entrepreneurial society?” This question has been raised in an entrepreneurial society like the

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6- See Sandesara (1982) and Kashyap (1986) who are among the economists who critically reviewed the Indian Small Industries Program.
USA and other industrialized countries. In a not so-entrepreneurial society like Pakistan, the question can be rephrased as “how can policy makers start a true transition from agrarian to a productive entrepreneurial and innovative society?” A possible answer to this question can be – by placing a better policy framework and physical support systems to the small enterprises to make them more productive (Rahman 2010 p12).

Scholars in Pakistan have found that the trade was regulated in a way that kept the small firms in disadvantaged positions and allowed large firms to progress and grow by providing easy accessibility to the trade licenses, official exchange rates for imports and tariff (Bari, Cheema and Haque, 2005). They further observed that along with labor, taxation and trade, access to credit facilities is also a main area of concern and constraint for the SMEs’ growth in the country. Rahman (2010) found that the entrepreneurs of SMEs are largely dissatisfied for the support provided by the government irrespective of the size and age of the SMEs in Pakistan.

Conceptual framework
Hypothesis formulation

In the given background, five hypothesis, based on the five variables selected for this research, are being formulated for testing to reach the answers to the research questions.

Hypothesis-1: Regulatory support

Roomi and Hussain (1998) identified government regulation as a factor hindering SME growth and causing failure. On the other hand import substitution strategies also put the SMEs on the disadvantaged positions, because of their size and for their more domestic targeted products, rebates. Ivy (1997) in Slovakia, Stevenson (1998) in Turkey, Pope (2001) in Europe and Kiggundu (2002) in Africa found that the unfavorable institutional/regulatory environment is often accompanied by the added expenses of corruption and bribery. Realizing the hindrances of bureaucratic intervention in the name of government regulations during the registration process, in Vietnam, authorities have standardized the business registration process by establishing a system of online registration (Nguyen et.al, 2009). In Pakistani context a recent comparative study of the SMEs located at different places of SMEs in Karachi revealed that the satisfaction level of the SME owners of all kinds and ages for the various kinds of support is low (Rahman 2010). Hence a hypothesis for further testing the satisfaction level of the SME entrepreneurs, specifically, on the regulatory systems available to them is being formulated as follows:

H1a: The SMEs’ entrepreneurs are satisfied with the ‘Regulatory Support’ in start of SMEs available to them in Pakistan

H1b: The SMEs’ entrepreneurs are satisfied with the ‘Regulatory Support’ in operations of SMEs available to them in Pakistan
H1c: The SMEs’ entrepreneurs are satisfied with the ‘Regulatory Support’ in growth of SMEs available to them in Pakistan

Hypothesis-2: Financial Support

Levy (1994) observed in their paper presented to the World Bank Conference that along with management skills, research and development also lacks in the regular supply of finances in the developing countries. As a result, they have lower productivity and lack of access to the newly available market. ILO (2002) claims that the lack of access to institutional financing is a major obstacle for the development of SMEs in Pakistan. Ngwuonugu (2005), found lack of access to credit and lack of venture capital are responsible factors for the weak growth and development of SMEs in Nigeria. Benzing, Chu, and McGee (2007) consider limited access to financial capital as important problems faced by the SMEs in developing and transitional economies. In the Pakistani context, Bari, Cheema and Haque (2005) in their study found that along with labor, taxation and trade, access to credit facilities is also a main area of concern and constraint for the SMEs’ growth in Pakistan. They further observed that lack of access to credit is a ‘binding constraints’ not only on the SME’s operation but also hinders growth and expansion. Hence a hypothesis for further testing the satisfaction level of the SME entrepreneurs, specifically, on the financial support to them is being formulated as follows:

H2a: The SMEs’ entrepreneurs are satisfied with the ‘Financial Support’ in start of SMEs available to them in Pakistan

H2b: The SMEs’ entrepreneurs are satisfied with the ‘Financial Support’ in operations of SMEs available to them in Pakistan

H2c: The SMEs’ entrepreneurs are satisfied with the ‘Financial Support’ in growth of SMEs available to them in Pakistan
Hypothesis-3: Technical support

Ngwuonugu (2005) attributed the hindrances to growth and development of the Nigerian SMEs to the lack of SMEs workers technological knowledge and poor access to modern technology to SMEs in general. Ganesh and Mehta (2010) while conducting research on success of entrepreneur resource planning in India found that technology and end-user related critical success factors of the large enterprise also have relationship with the successful ERP implementation at Indian SMEs. Hence a hypothesis for further testing the satisfaction level of the SME entrepreneurs, specifically, on the ‘technical support’ available to them is being formulated as follows:

H3a: The SMEs’ entrepreneurs are satisfied with the ‘Technical Support’ in start of SMEs available to them in Pakistan

H3b: The SMEs’ entrepreneurs are satisfied with the ‘Technical Support’ in operations of SMEs available to them in Pakistan

H3c: The SMEs’ entrepreneurs are satisfied with the ‘Technical Support’ in growth of SMEs available to them in Pakistan.

Hypothesis 4: Training support

While researching factors affecting the growth and development of Nigerian SMEs, Ngwuonugu (2005) found the responsible factor for the growth and development of SMEs in the country are the low level of education and training. In Pakistan, human resource constrains are for all sizes of firms because of low literacy rate and insufficient numbers of vocational/technical training institutions in the public and private sector (Bari, Cheema, and Haque 2005). They further observed that “as manufacturing firm expands; the lack of trained higher management and qualified technicians emerges as a binding constraint – a natural consequence of the
increased need for professional management” (p33). Hence a hypothesis for further testing the satisfaction level of the SME entrepreneurs, specifically, on the training support available to them can be formulated as follows:

H4a: The SMEs’ entrepreneurs are satisfied with the ‘Training Support’ in start of SMEs available to them in Pakistan

H4b: The SMEs’ entrepreneurs are satisfied with the ‘Training Support’ in operations of SMEs available to them in Pakistan

H4c: The SMEs’ entrepreneurs are satisfied with the ‘Training Support’ in growth of SMEs available to them in Pakistan

Hypothesis 5: Research and Development

Levy (1994) observed in his paper presented to the World Bank conference that along with lack of management skills, insufficient research and development the field of small and medium enterprises hinders the growth and development of the SMEs in the developing countries. It is widely recognized that government policies have a strong bearing on the effectiveness of the role of universities and research institutions in the process of innovation. However, the role which government plays in promoting SMEs in Pakistan in this regard is insufficient (Majid et al., 2000). Hence a hypothesis for further testing, the satisfaction level of the SME entrepreneurs, on ‘research and development’ systems available to them is being formulated as follows:

H5a: The SMEs’ entrepreneurs are satisfied with the ‘Research and Development’ in start of SMEs available to them in Pakistan

H5b: The SMEs’ entrepreneurs are satisfied with the ‘Research and Development’ in operations of SMEs available to them in Pakistan
The Effectiveness of the Support Policies

H5c: The SMEs’ entrepreneurs are satisfied with the ‘Research and Development’ in growth of SMEs available to them in Pakistan

Methodology

This research is empirically interpretative in nature and data has been collected by survey method using the five point Likert Scale. The 2,131 SMEs (target population) have been identified from the universe of the population of 2,463 registered members’ of the four trade associations from the five industrial zones in Karachi, Pakistan.

The sample size is 214 SMEs derived from the target population accumulating @ 10% from each zone (Annexure 1). The sample size of 214 is justified for this research as size of 30/variable is required for five variables used in this research. Accordingly, against the minimum 150 sample size, the number of responses is 183, which is sufficient for the sample size requirement.

The type of sampling is random through quota fixation in all the four industrial zones in Karachi. Quota sampling has been opted as a first step due to the limitation of this study as the population is scattered in the four industrial zones having different number of SMEs in each zone. The sampling technique involves two steps; first quota allocation and then systematic random sampling. The population frame for the four industrial zones was provided by the respective industrial zones. Subsequently required random numbers for the four sample frames were generated separately through excel for selecting the required samples (Annexure 1). This mixed methodology for this research has been applied to ensure the proportionate participation of the enterprises from each zone and then systemic random sampling ensures the equal representation of each subject. In the given circumstances, the above method is ideal for the balanced participations of each zone.

7-All the four trade and industries’ associations update their lists of members every years. For this research the lists of 2010 have been considered.
8- SITE, North Karachi Association of Trade and Industry, Korangi Association of Trade and Industries, Landhi Association of Trade & Industry and Federal B Area Association of Trade and Industry
The data collected through a questionnaire which was derived from the relevant literature. Various aspects of the support policies of SMEs have been evaluated by Ngwuonugu (2005); Benzing, Chu and McGee (2007); Bari, Cheema and Haque, (2005). Questionnaire of this study has been adapted from the previous researches. The questionnaire has five sections: ‘Regulatory Support’, ‘Financial Support’, ‘Technical Support’, ‘Training Support’, and ‘Research & Development’. It comprised of five independent variables and each independent variable has three constructs in the context of start, operation and growth: On the other hand dependent variable is ‘Satisfaction Levels’ of the entrepreneurs.

Findings and results

Prior to testing the five hypotheses, reliability of the constructs, and normality of the data were ascertained and derived hypotheses were tested through regression.

Normality of constructs

The normality of each construct was also ascertained through Skewness and Kurtosis which were within acceptable range of ± 3.0 (Kline 2005 and Park, 2008) as depicted in (Table-1, Annexure 2)

Reliability of the constructs

For this study, the reliabilities of each construct were measured separately as shown in Table 2 (Annexure 3). The calculated Cronbach’s Alpha for all the constructs are higher than 0.89 and hence were within the acceptable range of at least 0.70 (Nunnally and Bernstein, 1994; Zahra and George, 2002)

Multivariate Outliers Mahalanobis Distance (D2).

Multivariate outliers were identified for all the cases through Malanobis Distance (D2). Multivariate outlier is the distance between
a set of scores for each case and the sample means for all the variables. All the cases with low values of D(2) (p<.001) are multivariate outliers and had to be dropped (Bhardwaj, 2010; Hair Jr., et al., 2007). In this case all of them were within the prescribed range.

**Multicollinearity of the Independent Variables**

Multicollinearity of the independent variables was assessed through Eigen Values. This diagnosis helps in identifying numbers of distinct dimensions in the independent variables. In case several values are closer to zero, it is an indication of very high correlation (UCLA, 2014). In this case the lowest the highest value 0.197, and the lowest was 0.42. All the condition indices should be less than 15 (UCLA, 2014). The condition indices in this study were as lowest for regulatory policy = 5.304< 15, and highest was for research development 11.674<15, which again revalidates that the data does not have Multicollinearity issue. None of the tolerance values were close to Zero indicating no issue with Multicollinearity. Large VIF values (greater than 10) indicate higher level of collinearity (UCLA, 2014). The highest VIF was for financial support 1.448 < 10, and the lowest was for research and development 1.010< 10.

**Hypothesis testing**

Prior to testing the hypotheses, normality of data was ascertained through skewness and Kurtosis analyses and by converting to all the cases to standardized Z-score. Subsequently multivariate analysis was carried out through Mahalanobis distance. Subsequently multicollinery of the data were tested. These tests confirms the normality of data.

**Hypothesis-1**

Hypothesis one postulates that Pakistan’s entrepreneur are satisfied with the development of SMEs in the context of the regulatory
policy. Multiple regression analysis was used to test entrepreneur satisfaction level with the government regulatory policy at three stages which are (1) Start (2) Operation, and (3) growth.

Assumptions of linearity, normal distributed errors, and uncorrelated errors were checked and met. For testing nonlinearity observed and predicted values were plotted. The output showed that the points were distributed around a diagonal or horizontal line, with none of the graphs showing bowed pattern (Decision 411, forecasting, 2014). The standardized values for all the cases are within acceptable range of ± 3.0 (Kline 2005 and Park, 2008) confirming the normality of the data. The Durbin Watson value is 1.957, which is in the prescribed range of 0 to 4 (University of Texas, 2014) and indicates no serious violation of independence and the errors associated with one observation to any other observation (UCLA, 2014). The summarized results are presented in Table-3 (Annexure 4).

The results of the regression indicate that government regulatory policy at: (1) Start (M= 2.150, SD=0.971); (2) Operation (M= 2.09, SD=0.912, and (3) Growth (M= 1.98, SD=0.880 explain 16.3% of the variance towards entrepreneur satisfaction towards SME development, (M=2.098, SD=1.021), (R²=.163, F(3,179)=12.842, p<.05), which according to Cohen (1998) is a small effect. It was also found that government financial support at growth stage is a stronger predictor of satisfaction towards development of SME (β = .345, p<.05), while other two stages have no significant relationships.

Hypothesis-2

Hypothesis two postulates that Pakistan’s entrepreneurs are satisfied with the development of SME in the context of the governmental financial assistance. Multiple regression analysis was used to test the entrepreneur satisfaction level with the governmental technical assistance at three stages which are (1) Start (2) Operation, and (3) growth.
Assumptions of linearity, normal distributed errors, and uncorrelated errors were checked and met. For testing nonlinearity observed and predicted values were plotted. The output showed that the points were distributed around a diagonal or horizontal line, with none of the graphs showing bowed pattern (Decision 411, forecasting, 2014). The standardized values for all the cases are within acceptable range of ±3.0 (Kline 2005 and Park, 2008) confirming the normality of the data. The Durbin Watson value is 1.966, which is in the prescribed range of 0 to 4 (UCLA, 2014) and indicates no serious violation of independence and the errors associated with one observation to any other observation (UCLA, 2014).

The summarized results are presented in Table-4 (Annexure 5).

The results of the regression indicate that governmental financial support at (1) Start (M= 2.700, SD=1.106 (2) Operation (M= 2.54, SD=1.036, and (3) Growth (M= 2.53, SD= 1.042 explain 10.8% of the variance towards entrepreneur satisfaction towards SME development in the context of financial support (M=2.098, SD= 0.799, (R²=.10.8, F (3,179) =8.635, p< .05), which according to Cohen(1998) is a small effect. It was, also found that government financial support at growth stage is comparatively a stronger predictor of satisfaction towards development of SME (β = .249, p<.05), while other two stages have no significant relationships.

Hypothesis-3

Hypothesis three postulates that Pakistan’s entrepreneurs are satisfied with the development of SME in the context of the governmental technical support. Multiple regression analysis was used to test the entrepreneur satisfaction level with the governmental technical support at three stages which are (1) Start (2) Operation, and (3) growth. Assumptions of linearity, normal distributed errors, and uncorrelated errors were checked and met. For testing nonlinearity observed and predicted values were plotted. The output showed that the points were distributed around a diagonal or horizontal line, with
The results of the regression indicate that governmental technical support at (1) Start (M= 2.05, SD=0.76192) Operation (M= 2.06, SD=0.689), and (3) Growth (M= 2.07, SD=0.719) explain 14.7% of the variance towards entrepreneur satisfaction towards SME development in the context of technical support (M=2.098, SD= 0.799, (R²=.14.7, F (3,179) =11.43, p<.05), which according to Cohen (1998) is a small effect. It was also found that government technical support at operation stage predicts higher satisfaction towards development of SME (β = .259, p<.10), as compared to growth (β = .218, p<.10), while at start stage the relationship was insignificant.

Hypothesis-4

Hypothesis four postulates that Pakistan’s entrepreneurs are satisfied with the development of SME in the context of the governmental assistance towards training and development. Multiple regression analysis was used to test the entrepreneur satisfaction level with the governmental training and development support at three stages which are (1) Start (2) Operation, and (3) growth. Assumptions of linearity, normal distributed errors, and uncorrelated errors were checked and met. For testing nonlinearity observed and predicted values were plotted. The output showed that the points were distributed around a diagonal or horizontal line, with none of the graphs showing bowed pattern (Decision 411, forecasting, 2014). The standardized values for all the cases are within acceptable range of ± 3.0 (Kline 2005 and Park, 2008) confirming the normality of the data. The Durbin Watson value is 1.931, which is in the prescribed range of 0 to 4 (UCLA, 2014) and indicates no serious violation of independence and the errors associated with one observation to any other observation (UCLA, 2014).
range of 0 to 4 (UCLA, 2014) and indicates no serious violation of independence and the errors associated with one observation to any other observation (UCLA, 2014). The summarized results are presented in Table-6 (Annexure 7).

The results of the regression indicate that Governmental support for providing training and development at (1) Start (M= 2.33, SD=0.985) (2) Operation (M= 2.30, SD=0.926, and (3) Growth (M= 2.310, SD= 0.918 explain 9.4% of the variance towards entrepreneur satisfaction towards training and development (M=2.098, SD= 0.799, (R²=9.4%, F (3,179) =6.664, p<.05), which according to Cohen (1998) is a small effect. It was, also found that government training and development support at all the three stages were insignificant: at growth stages (β = .161, p >.10), at operation stage (β = 0.073, p>.10), while at start stage (β = .0.092, p>.10).

**Hypothesis-5**

Hypothesis five postulates that Pakistan’s entrepreneurs are satisfied with the development of SMEs in the context of the governmental assistance towards research and development. Multiple regression analysis was used to test the entrepreneur satisfaction level with the governmental training and development support at three stages which are (1) Start (2) Operation, and (3) growth. Assumptions of linearity, normal distributed errors, and uncorrelated errors were checked and met. For testing nonlinearity observed and predicted values were plotted. The output showed that the points were distributed around a diagonal or horizontal line, with none of the graphs showing bowed pattern (Decision 411, forecasting, 2014). The standardized values for all the cases are within acceptable range of ±3.0 (Kline 2005 and Park, 2008) confirming the normality of the data. The Durbin Watson value is 1.844, which is in the prescribed range of 0 to 4 and indicates no serious violation of independence and the errors associated with one observation to any other observation.
The summarized results are presented in Table-7 (Annexure 8).

The results of the regression indicate that the Governmental support for providing training development at (1) Start (M= 2.33, SD=0.985) (2) Operation (M= 2.30, SD=0.926, and (3) Growth (M= 2.310, SD= 0.918 explain 6.4% of the variance towards entrepreneur satisfaction towards training and development (M=2.098, SD= 0.799, \(R^2=6.4\%\), \(F(3,179) =5.140, p<.05\)), which according to Cohen(1998) is a small effect. It was also found that government training and development support at all the three stages were insignificant: at growth stages (\(\beta = .310, p>.10\)), at operation stage (\(\beta = -0.134, p>.10\)), while at start stage (\(\beta = .0.107, p>.10\)).

Discussion and conclusion

Evidences from all over the world shows that the SMEs play a significant role in the economic growth and development of a country as these entities are a major source for creating and generating employment in both developing and the developed countries. Literature searched for this study reveals that the contribution of these enterprises would not be affective without the support of Government and other specialized sectors. Small and medium enterprises thus need Governmental support at all the three stages which are start, operation and growth. The available literature on the SMEs in general and particularly on developing countries shows that the SME entrepreneurs expect more support to them at all the stages of businesses.

Realizing the importance of SME, the Government of Pakistan established SMEDA in 1998 with the objective of providing support to these enterprises. However, the contribution of these enterprises was below than what was envisaged, and thus the entrepreneurs were not happy with the kind of support they expected from the government and other entities.
In order to have a deep understanding on the issue, the entrepreneurs’ satisfaction level were measured in the context of regulatory policy, financial support, technical support, training program, and research and development. Subsequently, their satisfaction level was also measured at three stages (introduction, growth and operation) for each of the above parameters.

The overall level of satisfaction for these five parameters were low and were in the following descending order (1) Regulatory Policy ($R^2 = 0.177$; Adjusted $R^2 = .163$, $P<.05$), (2) Financial support ($R^2 =.123$, Adjusted $R^2 = .108$, $F(3,179)= 8.635<.05$) (3) Training and Development ($R^2 =.306$ Adjusted $R^2 =.094$, $F(3,179)= 6.163<.05$) (5) Technical Assistance $R^2 =.161$, Adjusted $R^2 =.147$, $F(3,179)= 11.43<.05$ (5) (4) Research and Development ($R^2 =.282$ Adjusted $R^2 =.064$, $F(3,179)= 5.140<.05$. 

The above results show that the governmental agencies have to contribute more in all the above parameters in order to have growth and development of SME in the country. Moreover, the entrepreneurs would like to have better support of the government agencies at the introduction stages. However, for most of the parameters the government support is available at growth stages, which again need to be addressed by the concerned agencies in order to promote and develop SME in Pakistan.

Despite, this research is limited to the SMEs in one city of Pakistan which is Karachi, its results can be generalized all over Pakistan as Karachi is the biggest industrial city of the country which account for about 40% of the total SMES operating in Pakistan.
References


Rahman, M (2010). “Small and Medium Enterprises’ (SMEs’) Support systems and Their Effectiveness: A Survey in Pakistan”, Post-doctoral Research submitted to the School of Public Policy, George Mason University, Northern Virginia, USA.


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Annexure 1

Sampling Frame

<table>
<thead>
<tr>
<th>Four registered associations of trade and industries</th>
<th>Registered Members (Population)</th>
<th>No. of SMEs (Target population)</th>
<th>Sample drawn @ 10% of the quota of the target population</th>
<th>Questionnaire filled</th>
<th>Questionnaire filled accepted after cleansing</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB Area Association of Trade and Industries</td>
<td>212</td>
<td>198</td>
<td>20</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>North Karachi Association of Trade and Industries</td>
<td>632</td>
<td>608</td>
<td>61</td>
<td>52</td>
<td>50</td>
</tr>
<tr>
<td>Korangi Association of Trade and Industries (K ATI)</td>
<td>483</td>
<td>417</td>
<td>42</td>
<td>33</td>
<td>31</td>
</tr>
<tr>
<td>SITE Association of Trade and Industries</td>
<td>1087</td>
<td>908</td>
<td>91</td>
<td>86</td>
<td>84</td>
</tr>
<tr>
<td>Total</td>
<td>2,463</td>
<td>2,231</td>
<td>214</td>
<td>190 (89%)</td>
<td>183 (85.5%)</td>
</tr>
</tbody>
</table>

Annexure 2

Table-1 (Descriptive statistics)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reg. Policy</td>
<td>2.077</td>
<td>0.835</td>
<td>0.826</td>
<td>0.314</td>
</tr>
<tr>
<td>Fin. Support</td>
<td>2.579</td>
<td>0.955</td>
<td>0.334</td>
<td>-1.036</td>
</tr>
<tr>
<td>Tech. Assistance</td>
<td>2.062</td>
<td>0.659</td>
<td>1.398</td>
<td>3.091</td>
</tr>
<tr>
<td>Train. Program</td>
<td>2.313</td>
<td>0.880</td>
<td>0.935</td>
<td>0.016</td>
</tr>
<tr>
<td>Research &amp; Dev.</td>
<td>1.903</td>
<td>0.941</td>
<td>0.222</td>
<td>-1.848</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>2.098</td>
<td>0.799</td>
<td>0.604</td>
<td>0.200</td>
</tr>
</tbody>
</table>

Table-1, above shows that technical assistance (M=2.062, SD=.0659) has the highest skewness 1.389. The lowest skewness of 0.222 was found in research and development (M=1.903, SD=.941). On the other hand technical Assistance (M=2.062, SD=.0659) has also the highest Kurtosis of 3.091 and satisfaction (M=2.098, SD=.0799) has the lowest kurtosis of 0.200.
Research

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Annexure 3

Table-2 Reestablishing Reliabilities

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s Alpha</th>
<th>No Of Items</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reg. Policy</td>
<td>0.891</td>
<td>3</td>
<td>2.077</td>
<td>0.835</td>
</tr>
<tr>
<td>Fin. Support</td>
<td>0.887</td>
<td>3</td>
<td>2.579</td>
<td>0.955</td>
</tr>
<tr>
<td>Tech. Assistance</td>
<td>0.897</td>
<td>3</td>
<td>2.062</td>
<td>0.659</td>
</tr>
<tr>
<td>Train. Program</td>
<td>0.825</td>
<td>3</td>
<td>2.313</td>
<td>0.880</td>
</tr>
<tr>
<td>Research &amp; Dev.</td>
<td>0.890</td>
<td>3</td>
<td>1.903</td>
<td>0.941</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>N/A</td>
<td>1</td>
<td>2.098</td>
<td>0.799</td>
</tr>
</tbody>
</table>

Table-2, above shows that the reliably of all the constructs are within the acceptable range (0.825 to 0.891). The reliability of regulatory policy ($\alpha=.891$, $M=2077$, $SD=0.835$) was the highest followed by research and development ($\alpha=.890$, $M=1.903$, $SD=0.941$) and the least was training program ($\alpha=.825$, $M=2.313$, $SD=.880$).

Annexure 4

Table-3 Regression summary (Regulatory Policy)

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.305</td>
<td>.146</td>
<td>8.962</td>
<td>.000</td>
</tr>
<tr>
<td>Start</td>
<td>.000</td>
<td>.095</td>
<td>.000</td>
<td>.997</td>
</tr>
<tr>
<td>Operation</td>
<td>.083</td>
<td>.122</td>
<td>.095</td>
<td>.682</td>
</tr>
<tr>
<td>Growth</td>
<td>.313</td>
<td>.095</td>
<td>.345</td>
<td>3.291</td>
</tr>
</tbody>
</table>

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## Annexure 5
### Table-4 Regression Summary (Financial Support)

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.355</td>
<td>.162</td>
<td>8.373</td>
<td>.000</td>
</tr>
<tr>
<td>Start</td>
<td>.066</td>
<td>.076</td>
<td>.92</td>
<td>.384</td>
</tr>
<tr>
<td>Operation</td>
<td>.033</td>
<td>.111</td>
<td>.42</td>
<td>.700</td>
</tr>
<tr>
<td>Growth</td>
<td>.191</td>
<td>.094</td>
<td>2.37</td>
<td>.043</td>
</tr>
</tbody>
</table>

R² = .123, Adjusted R² = .108, F(3,179) = 8.635 < .05

## Annexure 6
### Table-5 Regression Summary (Technical Assistance)

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.137</td>
<td>.180</td>
<td>6.313</td>
<td>.000</td>
</tr>
<tr>
<td>Start</td>
<td>- .077</td>
<td>.115</td>
<td>-.73</td>
<td>.503</td>
</tr>
<tr>
<td>Operation</td>
<td>.301</td>
<td>.165</td>
<td>.259</td>
<td>.070</td>
</tr>
<tr>
<td>Growth</td>
<td>.242</td>
<td>.131</td>
<td>.218</td>
<td>.066</td>
</tr>
</tbody>
</table>

R² = .161, Adjusted R² = .147, F(3,179) = 11.43 < .05

## Annexure 7
### Table-6 Regression Summary (Training Program)

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.454</td>
<td>.161</td>
<td>9.047</td>
<td>.000</td>
</tr>
<tr>
<td>Introduction</td>
<td>.075</td>
<td>.093</td>
<td>.092</td>
<td>.421</td>
</tr>
<tr>
<td>Operation</td>
<td>.063</td>
<td>.182</td>
<td>.073</td>
<td>.730</td>
</tr>
<tr>
<td>Growth</td>
<td>.141</td>
<td>.164</td>
<td>.161</td>
<td>.393</td>
</tr>
</tbody>
</table>

R² = .306, Adjusted R² = .094, F(3,179) = 6.163 < .05

PAKISTAN BUSINESS REVIEW JAN 2015
### Annexure 8

**Table-7 Regression Summary (Research and Development)**

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.645</td>
<td>.129</td>
<td>12.709</td>
<td>.000</td>
</tr>
<tr>
<td>Introduction</td>
<td>.089</td>
<td>.274</td>
<td>.107</td>
<td>.325</td>
</tr>
<tr>
<td>Operation</td>
<td>-.113</td>
<td>.400</td>
<td>-.134</td>
<td>.282</td>
</tr>
<tr>
<td>Growth</td>
<td>.262</td>
<td>.294</td>
<td>.310</td>
<td>.889</td>
</tr>
</tbody>
</table>

\[ R^2 = .282, \text{Adjusted } R^2 = .064, F(3, 179) = 5.140 < .05 \]

[http://people.duke.edu/~rnau/testing.htm](http://people.duke.edu/~rnau/testing.htm)
IMPACT OF TERRORISM ON ECONOMIC DEVELOPMENT IN PAKISTAN

Shabir Hyder¹, Naeem Akram² and Ihtsham Ul Haq Padda³

Abstract

In the recent history, Pakistan is facing the menace of terrorism. Besides facing the consequences of Afghan War, Pakistan is also affected by various ethnic, religious and linguistic conflicts which have increased terrorists’ activities. These conflicts have severely affected the socio-economic structure of Pakistan. To gauge the impact of terrorism on Pakistan’s economic growth Solow economic growth model has been used. Using data on terrorism from Global Terrorism Database, co-integration analysis for the period 1981-2012 has been applied. The analysis suggests that terrorism has negatively affected the economic growth in Pakistan. Among the various variables that were used the terrorism is most significant and major contributor in reducing the economic growth. However, study finds that foreign assistance that is provided to Pakistan in the aftermath of the participations in Afghan war and the war against terrorism; in the shape of aid, grants and debt rescheduling etc. has a positive impact on the economic growth.

Keywords: Economic Growth, Terrorism, Co-integration

JEL Classification: Z 000

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Introduction

Terrorism can be defined as the “the premeditated use or threat of use of violence by individuals or sub-national groups to obtain a political or social objective through the intimidation of a large audience, beyond that of the immediate victim” (Sandler and Enders, 2005). Terrorism is not a recent phenomenon; however it gained much importance in literature after 9/11 attacks on the US in 2001. Although it’s a global phenomena, Middle East and South Asia are specifically affected due to the War on terror initiated after the 9/11 attacks. The Taliban Government in Afghanistan was considered to be providing the base for terrorist activities of Al-Qaeda by the United States (US) and her allies. After the 9/11 incident Afghanistan was attacked by the US and NATO forces in 2001. Pakistan, a neighboring country of Afghanistan, was also affected due to the war on terror and its aftermath.

Terrorism not only affected the social fabric of Pakistani society but also has economic repercussions for a developing country like Pakistan. In fact, terrorism affects developing country much more severely than developed ones, as developed countries have diverse economies and terrorism results only in reallocation of resources to more secure sectors of economy, while in case of developing countries, where there is much concentration of resources in certain sectors, are more affected (Sandler and Enders, 2005). Pakistan has been a victim of terrorism for the last three decades, due to her involvement in wars in Afghanistan. Besides involvement in those wars, ethnic and sectarian conflicts among different factions and separatist nationalistic movements on Pakistani soil are other sources of terrorism in Pakistan. Such a situation resulted in ultimately slowing down the economic growth. Therefore, the present study contributes to the existing literature by providing evidence on the impact of terrorism on Pakistan’s economic growth. This impact has been analyzed by using data from 1981 to 2012.

The organization of the paper is as follows: after the introduction the second section is devoted to the review of the literature, section three provides a brief history of insurgency in Pakistan, section four summarizes the theoretical and Empirical Model that has been used, while section five summarizes the empirical methodology and results. At the end conclusions emerging from the
study, policy implications and suggestions for the future research are presented.

**Literature Review**

The literature on the impact of terrorism on economic condition of a country is very limited however a brief review of the available literature is presented below. Bloomberg et al. (2002) present an economic model of terrorism, in which terrorist groups who are unhappy with the current situation in a country try to bring change by indulging in terrorist activities. Terrorist activities of such groups may have different results depending on the economic situation. Either they can reduce the economic activities by increasing terrorism, or if more economic incentives are present in the economy then terrorism is reduced for example, more employment opportunities can reduce the incentive to indulge in terrorist activities. Study is of the view that recessions in high income countries can result in higher probability of terrorist activities.

Bloomberg et al. (2004) empirically look into the impact of terrorism on 177 countries over the period 1968-2000. The study finds the impact of terrorism on economic growth as negative. Further findings show that terrorism results in shifting of resources from investment spending to government spending. However, the incidence of terrorism differs on different groups of countries. For example, although the terrorist acts are more frequent in advanced economies like that of the OECD countries but their impact was less significant than developing countries.

Sandler and Enders (2005) have similar views as they compare the impact of terrorism on developed and developing countries. Study argues that developed countries have vast economy and any terrorist activity may result in reallocating of resources among various sectors of the economy, but however, this is not the case with the developing countries and any major terrorist act may jeopardize the economic growth. Like their vast economies, developed countries have better institutions and markets and can absorb effects of terrorism. They can provide necessary fiscal and monetary stimuli to absorb the effects of terrorism, while many developing countries lack this ability. Besides, developing countries are more dependent on other countries as compared to developed ones. Therefore, any economic shock
induced by terrorism in other countries can affect their economic growth.

Koh (2007) examines the impact of war of terrorism on global economy and the allocation of resources to research and development (R&D). Various costs that terrorism may have on the economy include the crowding out of private R&D expenditure by the military R&D expenditure to counter terrorism, thereby reducing economic growth. Besides, international corporations pursuing investment in other countries evaluate country risk and spend higher amount on security which acts as a barrier to the flow of investment to the developing countries and also increase the operational costs. Counter terrorism measures increase expenditure on security which also reduces expenditure on private R&D. The crowding out of private R&D by security related R&D would reduce the rate of innovation over time, thereby reducing economic growth in longer run.

Gaibulloev and Sandler (2009) investigated the impact of terrorism on per capita growth in Asia for the period 1970-2004. Study found significant growth limiting impact of terrorism. The impact seems to be stronger in the developing countries as compared to developed one because of the developed countries’ resilience to terrorism due to their robust economies. Terrorist activities generated by internal conflicts were found to be twice as effective in reducing growth as compared to those of international conflicts. The main growth reducing impact comes from the crowding in of government expenditure and a loss of investment associated with the increase in terrorist activities.

Not only the terrorism affect the country where these activities are taking place, but also have their impact on the neighboring countries. Murdoch and Sandler (2004) analyzed the impact of civil wars on the neighboring countries. Study found growth reduction not only in the affected country but also it passed its effect to the neighboring country. The growth limiting impacts have both short run and long run impact on the affected economy as well as neighboring economies. In the short run, civil war can reduce the economic growth by as high as 85 percent in the affected economy, but however in the long run this effect is 30 percent. While for neighboring country the short run growth reducing impact is 24 percent, and 30 percent in the long run.
Gries et al. (2009) investigated the causality between terrorism and economic growth for seven western countries for the period 1950 to 2004. The causality runs from economic growth to terrorism as the poor economic performance manifested in low opportunity costs of violence, which may in turn, increase the conflicts and thus terrorism. On the other hand terrorism may cause low economic growth because accumulation and allocation of resources may be negatively affected by terrorism. Results indicate that important economic and political events have profound impact on the pattern of terrorism and also on economic growth. Besides, in most countries cases it is the economic growth that statistically causes the terrorism, however, their economies are resilient enough to withstand such terrorist attacks. Economic performance although make terrorism opportunity costs high enough to thwart such incidents, but it is also suggested that economic performance is not the only criteria to counter terrorism and political and social consideration must be taken into account by policy makers to counter terrorism.

**Terrorism, Sectarianism, Ethnic Conflicts in Pakistan**

**Afghan War**

Pakistan has been suffering from terrorism for the last three decades. Due to its geo-strategic position, Pakistan became a center stage of terrorist activities. When the USSR attacked Afghanistan in 1979, Pakistan being a neighboring country had also to face the brunt of that invasion. It was first the Afghans who started their resistance with old weapons. Pakistan finding itself to be the next in the list of conquered countries by the USSR, had to retaliate by helping Afghans to stop the Soviet invasion. Afterwards, the US and her western allies joined the bandwagon to counter the spread of communist ideology. Pakistan served as the primary logistical channel for the Afghan resistance. The military aid from Pakistan and the US and financial backing from Arab countries enabled Afghans to drive the USSR out of Afghanistan in 1989.

After the USSR left, Pakistan and the Afghans were left alone by their former allies and a ruling power vacuum was created. A civil war for the power started in Afghanistan which had also repercussions for her neighboring country Pakistan. Various unstable
governments in Afghanistan were installed, but due to their weakness, Afghanistan faced worst kind of law and order situation in the country. It was during that time, Afghans (disappointed with civil war) were waiting for some strong government which could stabilize the law and order situation in Afghanistan.

This strong form of government came in the shape of former Afghan students (Taliban) of Madrassas (religious schools) operating in Afghanistan and Pakistan. Taliban had a strong government and controlled the law and order situation much more forcefully. But the government of Taliban was only formally accepted by Pakistan, Saudi Arabia and the UAE only. Their non-acceptance by other countries secluded them from mainstream global community. Finding a good base for propagation of their version of radical Islam, the earlier Arab Mujahedeen (those who fought against Soviet Union) also returned back along with new Arab, Central Asian Islamists and African Mujahedeen.

Al-Qaeda was founded by once blue eyed boy of the US, Osama bin Laden. After 9/11 attack, US alleged Al-Qaeda for this attack and in retaliation attacked Afghanistan, overthrew Taliban’s government. Infuriated by foreign invasion on their motherland another war for independence of Afghanistan was started. Taliban were also joined by the other former Mujahedeen organizations. The US pressure on the then Pakistani president Musharaf government led Pakistan to take U turn by closing its ties with their former friends, i.e. Taliban. Since Afghanistan is a landlocked country, therefore, Pakistan provides the transit route for the US military equipment to Afghanistan. Pakistan also provided air bases to the US air force.

After the US attack on Afghanistan, tribal people in the Federally Administered Tribal Area (FATA) formed Tehrik-e-Taliban Pakistan (Student Movement of Pakistan). Some of those radical Islamists had previously fought against the USSR in Afghanistan and new recruits joined the Pakistani Taliban and took control of the most parts of the FATA and practically Pakistan government lost her control over most of the FATA. The Pakistani Taliban wanted to fight against the US in Afghanistan and also asked Pakistani government to take back her support to the US. Besides, they wanted to implement their own version of Islam in Pakistan. Pakistan’s government retaliated by
starting military operations against the Taliban in FATA and Swat, where Taliban had control. Besides military operations the US started attacks on tribal areas of Pakistan by unmanned aerial vehicles (UAV) to target Taliban and Al-Qaeda leadership. The collateral damage in terms of human and property losses due to military operations and the UAV attacks resulted in retaliation by Taliban. They targeted military, police and other security agencies and current wave of terrorism in Pakistan is led by those Taliban.

Ethnic Conflict

During the eighties Pakistan was also in the grip of ethnic strife in the province of Sindh mainly in the capital city, Karachi. Various factions were involved in ethnic conflicts in Karachi. Karachi is the centre of economic activities. Due to ample business and employment opportunities, people from all over Pakistan are attracted to reside in Karachi. Besides the natives i.e. Sindhis, residents of other three provinces of Pakistan all came to Karachi. Over time, ethnic segregation continued and this segregation later resulted in ethnic conflicts. These conflicts started in mid 80’s and were at peak in 1990’s. Both Pakistan People’s Party and Muslim League governments initiated military operations during 1990’s. These operations were partially successful. Later on in the first decade of the twenty first century, although, these ethnic conflicts came to a halt, however, unrest still continued in the form of increased criminal activities. The most prominent of these criminal activities is extortion, especially from businessmen. Although, a new operation is being launched against these criminal activities, however, there is little success in controlling, which is evident from the rampant crimes in Karachi.

Sectarian Conflict

Pakistan was also plagued by sectarian conflict in 1980s. These sectarian conflicts involved mainly two major sects of Islam, both living in Pakistan. During the eighties, Zia Ul Haq regime tried to implement Islam in Pakistan. However, since there are differences over some religious issues between those two sects, therefore, the implementation of Islam by Zia regime was not equally acceptable. During the Afghan War in 1980’s, funds flow from Middle Eastern
countries to religious factions to fight against former Soviet Union in Afghanistan. These funds, however, also enabled religious factions to build their militant groups, which were later used in sectarian conflicts (Chandran, 2003). A wave of terrorism based on sectarian differences resulted in killing and injuring of key leaders of both factions and also resulted in collateral damage to private citizens and property.

Besides those religious and ethnic conflicts, another factor came in the shape of Baloch nationalism. Baluchistan was formerly an independent state, which in 1951 decided to merge with Pakistan. However after some time Balochs felt that their resources were exploited by central government, while they are not given their due share in those resources. This is because Balochistan is rich in oil and gas, and the biggest natural gas reserve in Pakistan is situated in Balochistan. This sense of deprivation led them to start militant struggle. Military operations were carried out against those militants in 70’s and uprising was suppressed. However this new kind of militancy again started in 2000’s.

Data and Estimation

Theoretical and Empirical Model.

In theoretical context, Terrorism have adverse impacts on the economic growth, these impacts are transmitted through various channels. First and foremost, terrorism destroys physical and human capital of a country. Terrorism often results in the collapse of health and educational infrastructure; leading to scarcity in the clean drinking water and facilities of sanitation, medical care, deterioration in the standard of education, low enrollment rates all of these have negative implications for economic growth. Second, it restricts the trade and business activities leading to restrain the economic growth. Third, due to increased perception of risks, terrorism may reduce the inflows of Foreign Direct Investment (FDI) and as FDI is a crucial part in the investment activities in most of the developing countries and any decrease in FDI will reduce the economic growth. Besides FDI, instability and risks in a country will also result in reducing the investment by its own residents and will also cause the capital flight. Fourth, terrorism also diverts the public expenditure from developmental activities towards less productive defense activities. Fifth, terrorism
also causes the displacement of people in the terrorism hit areas and it not only creates social problems but also results in economic problems.

To derive the theoretical model for the present study, the Solow (1957) new classical model provides the necessary foundations; however, it has ignored the role of human capital in the determination of economic growth. To overcome this Mankiw, Romer and Weil (1992) has incorporated the human capital in the growth models. So we can specify the model as:

Economic growth (Y) is assumed as a function of the stocks of physical capital (K), Labor force (PoP), Human capital (HC) and a vector of other variables (Z) including terrorism and technology.

\[ Y = f(K, PoP, HC; Z) \]

On the basis of the theory and available empirical studies on the terrorism, the following reduced form equation can be derived:

\[ y_t = \alpha + \beta pop_t + \gamma k_t + \omega hc_t + \delta op_t + \rho fa_t + \theta ter_t + \epsilon_t \]

Where, \( y_t \) denotes per capita GDP and is used as dependent variables, \( \alpha \) is intercept while pop, k, hc, op, fa and ter represents population growth rate, human capital, gross capital formation, openness, foreign assistance and terrorism. The \( \beta, \gamma, \omega, \delta, \rho \) and \( \theta \) are coefficients of respective variables and \( \epsilon_t \) is the error term.

In the study data has been used for the period 1981-2012. The detailed description of the variables and their data sources is presented in table 1A in the appendix.

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Empirical Methodologies and the Results

Before estimating the model the first step is to check for the stationarity. According to Newbold (1974) in the case the series is not stationarity (or the presence of unit root) the OLS estimation may yield spurious results. To check the stationarity of the variables Augmented Dickey Fuller (ADF) test has been used and the results are summarized in Table 2A in the appendix.

Results reveal that all the variables are non-stationary at level so the null hypothesis of unit root at level cannot be rejected. But in the case of first difference, null hypothesis of unit root is rejected for all the variables hence all the variables are integrated of order 1 i.e. I(1). To handle the spurious regression most appropriate way is to use the co-integration technique. To test the co-integration among the variables, there are two main techniques; Engle and Granger (1987), and Johansen (1988) approach. As the number of variables in the study is more than two, so we apply cointegration procedure developed by Johansen (1988).

There are four different steps involved while testing cointegration, in the first step order of stationarity is determined and variable must be stationary at same level. We have already found that variables are stationary at first difference i.e. series of the model are I(1). Therefore, the cointegration can be determined between the variables. Second step involves choosing the optimal lag length. To determine the lag length VAR model has been used and on the basis of AIC criteria, the lag length of one for the model is determined. Next step deals with determining the number of co-integrating vectors. In the study, both trace statistic and eigen value statistic are used.

The results of both of the statistics are summarized in tables in the appendix3A and table 4A respectively. In the fourth step the normalized equation of the co integration equation is analyzed, the
results of the normalized cointegrating equation are presented in table 1. Both the Trace and Maximum Eigen value tests suggest that there exist three co-integrating vectors.

Table 1:

Normalized cointegrating coefficients

<table>
<thead>
<tr>
<th>Name of the variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>T statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>POP</td>
<td>-1.834202*</td>
<td>0.05509</td>
<td>-33.29464</td>
</tr>
<tr>
<td>KT</td>
<td>0.332599*</td>
<td>0.03312</td>
<td>10.04224</td>
</tr>
<tr>
<td>HC</td>
<td>0.100521*</td>
<td>0.01409</td>
<td>7.134208</td>
</tr>
<tr>
<td>TER</td>
<td>-0.033129*</td>
<td>0.00228</td>
<td>-13.85300</td>
</tr>
<tr>
<td>OP</td>
<td>0.133276*</td>
<td>0.0389</td>
<td>3.400411</td>
</tr>
<tr>
<td>FA</td>
<td>0.050816*</td>
<td>0.0044</td>
<td>11.54909</td>
</tr>
</tbody>
</table>

Log likelihood: 284.1438
Adjustment Coefficient: -0.33774* - 0.1152 2.931745

* denotes significance at 5% level

The normalized cointegration coefficients (summarized in table 1) reveal that in the long run population growth rate is a major obstacle to economic growth in Pakistan as its coefficient is largest among the selected variables. These findings are in accordance with the Malthusian theorem and many other studies including Naqvi (2010). It highlights the importance of the extended efforts to cap the ever-growing population in Pakistan. Although the gross capital formation is positively affecting the economic growth in Pakistan but the coefficient is not significant. Primary school enrollment is found to be having a positive and significant relationship with per capita GDP; these results are consistent with the theory and numerous studies also come to the same conclusion that human capital have a positive role in economic growth (Mankiw, 1992). Consistent with expectations, openness is significant with positive sign in all the specifications. It supports the findings of Akram (2010), Pattilo (2002), Coe (1995), and Lucas (1988). The coefficient for indicator of terrorism shows negative and statistically significant impact on economic growth. This implies that terrorist activities in Pakistan are resulting in hampering of economic growth. This finding is in accordance with the findings of the earlier panel data studies of Gaibulloev (2009), Bloomberg (2004) and Murdoch (2004).

Results also indicate that during the period of Afghan wars where Pakistan has received most of its economic assistance, the per
capita GDP growth rate is 22.3 percent higher than the other period. This result may indicate that Pakistan has used foreign economic assistance for its growth. However, it seems from the data that these funds were utilized in non developmental sector and a sense of false boom in economic growth is created. This is because if these funds were used in developmental activities, then it was more likely that economic growth would have maintained itself after the drying up of foreign aid. This is evident from the annual growth rate of per capita GDP, which was as high as 7.05 and 4.92 percent in 1980 and 1981 (when Pakistan was receiving more foreign assistance) as compared - 0.76 percent and 1.17 percent in 1993 and 1994 (when Pakistan was receiving less foreign economic assistance). If Pakistan uses these funds sagaciously by developing basic infrastructure then it may have been able to minimize the negative consequences of the terrorism and there was a possibility that positive effect may outweigh the negative impacts of terrorism on the economic growth.

Conclusions, Policy Implications and Future Research Directions:

Over the years continued state of insurgency in Pakistan is causing damages to the country in all the aspects including economic aspect. Besides the non measurable loss to humans, other major economic costs of the terrorism include poverty, capital flight, destruction of infrastructure, reduction in FDI and exports, low public revenues and diversion of the development expenditure to the expenditure on law and order maintenance and so forth. All these economic costs have significant impact on economic growth, e.g. one of the major contributors is the recent violence and terrorist activities in Pakistan which caused the overall GDP growth in 2010 to fell to 1.6 per cent.

Our study also reveals the same picture, as one percent increase in terrorist incidents is resulting in reducing the per capita GDP growth by 0.39 percent. This impact may not reveal the negative externalities associated with terrorist activities like the lost FDI, reduction in international trade, loss of trade and business activities in Pakistan due to fear of terrorism. With this background it is very clear that terrorism has significantly affected our economy and for a sustainable economic growth, Pakistan needs peace and harmony. So it is important that all sort of action be taken to curb the terrorism.
Another important implication that emerged from the present study is that over the years the economic aid that is being provided by the donor agencies, in the aftermath of the Pakistan participation in the wars against terrorism, has helped the country. Therefore it is strongly recommended that at this critical juncture of country’s history, international community may once again stand with Pakistan (not by word but with actions) to help the country by providing assistance in the shape of grants and debt rescheduling and access to the markets. Because underdevelopment and poverty, can provide fertile grounds to terrorists for new recruits.

It may also be noted that as the effects of terrorism are transmitted to economic growth through various channels including FDI, Exports, Stock Exchange activities and so forth. So it is equally important that future studies may be conducted that could analyze the impact of terrorism on the above stated individual components of GDP.

Note:

The views presented in the paper are the author’s personal and do not reflect the views of the affiliated institutions.
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Bloomberg, S. Brock, Gregory D. Hess and AkillaWerapanna (2002). Terrorism from Within: An Economic Model of Terrorism. Working Papers in Economics, Claremont Colleges,


Sandler, Todd and Walter Enders (2005). Economic Consequences of Terrorism in Developed and Developing countries: An Overview. Downloaded on 6th November 2010 from: [http://www.cba.ua.edu/~wenders Econ_Consequences_Revised.pdf](http://www.cba.ua.edu/~wenders Econ_Consequences_Revised.pdf)


Appendix

Table 1A:
Data and Variables Description

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Variable</th>
<th>Data Source</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Per Capita GDP (Yt)</td>
<td>WDI</td>
<td>Current GDP in PKR/ Population</td>
</tr>
<tr>
<td>2.</td>
<td>Investment (Ki)</td>
<td>WDI</td>
<td>Gross capital formation as percentage of GDP used as proxy for Physical Capital/Investment</td>
</tr>
<tr>
<td>3.</td>
<td>Labour (pop)</td>
<td>WDI</td>
<td>Population growth rate</td>
</tr>
<tr>
<td>4.</td>
<td>Openness (op)</td>
<td>WDI</td>
<td>(Exports + Imports)/GDP*100.</td>
</tr>
<tr>
<td>5.</td>
<td>Foreign Assistance (FA)</td>
<td>--------</td>
<td>Dummy variable to capture the structural policy break in the economic growth and terrorism relationship.</td>
</tr>
<tr>
<td>5.</td>
<td>Human Capital (HC)</td>
<td>Publications of the State Bank of Pakistan (SBP)</td>
<td>Primary School Enrolment used as proxy for human capital.</td>
</tr>
<tr>
<td>6.</td>
<td>Terrorism (TR)</td>
<td>Global Terrorism Database</td>
<td>Number of terrorist events in a year.</td>
</tr>
</tbody>
</table>

5-WDI stands for World Development Indicators 2014

6-For the period 1981-87 and 2002-2008 it has been assigned value 1 because during that period due to the participation in the Afghan War against Soviet Union and war against terrorism after 9/11; Pakistan has been provided foreign assistance in the shape of aid, grants, debt rescheduling etc. But during the middle period 1988-2001 and also after 2008 (due to lack of confidence between Pakistan and USA on war on terror) very little assistance is provided as compared to the war periods. It worth noting that as the foreign assistance provided to Pakistan during period of Afghan Jihad and War against terrorism is many fold, so only use of data of Aids/Grant or Concessional loan etc. may not serve the purpose therefore a dummy variable is being used.

7-Although in some of the empirical studies other indicator like number of causalities, injuries and damage to physical assets. But a terrorism event, whether it results in human or physical loss or not, give negative signals to economic agents both local and foreign. Consequently, Exports, FDI and activities in Stock Exchanges etc are badly affected.
### Table 2A: Results of ADF Test

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>Level Intercept</th>
<th>Level Trend &amp; Intercept</th>
<th>1st Difference Intercept</th>
<th>1st Difference Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Y_t$</td>
<td>-0.392870</td>
<td>-2.947643</td>
<td>2.558556</td>
<td>-3.088032</td>
</tr>
<tr>
<td>$K_t$</td>
<td>-1.386556</td>
<td>-1.215438</td>
<td>0.383636</td>
<td>-4.814776</td>
</tr>
<tr>
<td>$P_{oPt}$</td>
<td>-1.224127</td>
<td>-2.933984</td>
<td>-1.483096</td>
<td>-6.794993</td>
</tr>
<tr>
<td>$H_{Ct}$</td>
<td>-1.191100</td>
<td>-1.972801</td>
<td>2.1125515</td>
<td>-4.869828</td>
</tr>
<tr>
<td>$T_{ERt}$</td>
<td>-1.307664</td>
<td>-1.761068</td>
<td>0.5003665</td>
<td>-4.525888</td>
</tr>
<tr>
<td>$O_{pt}$</td>
<td>-2.229294</td>
<td>-2.409888</td>
<td>-0.11777</td>
<td>-5.134992</td>
</tr>
</tbody>
</table>

Null Hypothesis: Existence of unit root, * and ** denotes the rejection of Null at 1% and 5% level respectively

### Table 3A: Unrestricted Cointegration Rank Test (Trace)

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigen value</th>
<th>Trace Statistic</th>
<th>0.05 Critical Value</th>
<th>Prob.**</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.960441</td>
<td>221.0520</td>
<td>125.6154</td>
<td>0.0000</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>0.914253</td>
<td>137.0733</td>
<td>95.75366</td>
<td>0.0000</td>
</tr>
<tr>
<td>At most 2 *</td>
<td>0.706240</td>
<td>73.20802</td>
<td>69.81889</td>
<td>0.0261</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.554040</td>
<td>41.35823</td>
<td>47.85613</td>
<td>0.1775</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.447416</td>
<td>20.36257</td>
<td>29.79707</td>
<td>0.3985</td>
</tr>
<tr>
<td>At most 5</td>
<td>0.170817</td>
<td>4.940702</td>
<td>15.49471</td>
<td>0.8151</td>
</tr>
<tr>
<td>At most 6</td>
<td>0.002709</td>
<td>-0.11777</td>
<td>-5.134992</td>
<td>0.7906</td>
</tr>
</tbody>
</table>

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

### Table 4A: Unrestricted Cointegration Rank Test (Maximum Eigen value)

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigen value</th>
<th>Max-Eigen Statistic</th>
<th>0.05 Critical Value</th>
<th>Prob.**</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.960441</td>
<td>83.97874</td>
<td>46.23142</td>
<td>0.0000</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>0.914253</td>
<td>63.8523</td>
<td>40.07757</td>
<td>0.0000</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.706240</td>
<td>31.84980</td>
<td>33.87687</td>
<td>0.0856</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.554040</td>
<td>20.99365</td>
<td>27.58434</td>
<td>0.2765</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.447416</td>
<td>15.42187</td>
<td>21.13162</td>
<td>0.2604</td>
</tr>
<tr>
<td>At most 5</td>
<td>0.170817</td>
<td>4.870179</td>
<td>14.26460</td>
<td>0.7581</td>
</tr>
<tr>
<td>At most 6</td>
<td>0.002709</td>
<td>-0.11777</td>
<td>-5.134992</td>
<td>0.7906</td>
</tr>
</tbody>
</table>

Max-eigen value test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values
Unit Root Test:

Unit root test is used to check whether data is stationary or not. A process is said to be stationary if its probability distribution remains unchanged as time proceeds and we can say that data generation process does not changed. To test the unit root most widely used test is Augmented Dickey Fuller (ADF) test. The general form of ADF test can be written at level and first difference form as follows.

\[
\Delta x_t = \alpha x_{t-1} + \sum_{i=1}^{k} \beta_i \Delta x_{t-i} + \vartheta + \gamma_t + \epsilon_t
\]

\[
\Delta \Delta x_t = \alpha \Delta x_{t-1} + \sum_{i=1}^{k} \beta_i \Delta \Delta x_{t-i} + \vartheta + \gamma_t + \epsilon_t
\]

Co-integration:

This technique depends on direct investigation of cointegration in the vector auto regressive (VAR) representation. It yields maximum likelihood estimators of the unconstrained cointegration vectors and it allows one to explicitly test for number of cointegration vectors so that the weaknesses of Engle-Granger (1987) two-step procedure are overcome. Engle and Granger (1987) technique is a two-step methodology and stability deviations from the relationship is examined by using the coefficients estimated after fitting static regression. However, the test suffers from a number of short comings. The basic assumption of the technique is that the cointegrating vector is unique, bounding to a model that is a linear combination of independent cointegrating vectors. However, if cointegrating vector is not unique it fails to address the situation. Moreover, it examines only the dominant cointegrating vector between series.

If there is a VAR of order p
Where \( y_t \) is a \( k \)-vector of non-stationary I(1) variables, \( x_t \) a \( d \)-vector of deterministic variables, and \( \varepsilon_t \) is a vector of innovations. We may rewrite this VAR as,

\[
\Delta y_t = \sum_{i=1}^{p} \Delta y_{t-i} + \sum_{i=1}^{p} \Delta x_{t-i} + \beta x_t + \varepsilon_t
\]

Granger’s representation theorem asserts that if the coefficient matrix \( U \) has reduced rank \( r,k \) then there exists \( k \times r \) matrices \( \alpha \) and \( \beta \) each with rank \( r \) such that \( U = \alpha \beta' \) and \( \beta' y_t \) is I(0). \( r \) is the number of cointegrating relations (the cointegrating rank) and each column of \( \beta \) is the cointegrating vector. The elements of \( \alpha \) known as the adjustment parameters. Johansen’s method is to estimate the matrix from an unrestricted VAR and to test whether we can reject the restrictions implied by the reduced rank of \( U \).
IMPACT OF CONTEXTUALIZED TEXT ON STUDENTS’ LEARNING OF THINKING SKILLS AT THE TERTIARY LEVEL

Najeeb-us-Saqlain¹, Rafiq-ul-Islam² and Ismail Saad³

Abstract

Contextualized Text means the text resulting from the local circumstances and in accordance with learners’ needs and cognition level. True experimental design was adopted for the research to explain the relationship between dependent and independent variables. Two groups (control and experimental) were selected randomly to conduct the experiment. The independent variable of the study was Contextualized text and dependent variable was Thinking Skills of the learners while learners’ Socioeconomic Status was taken as an attribute variable.

One public sector business school was selected randomly for the experiment from which 80 students were distributed in two groups as control and experimental groups with 40 students in each group through a process of randomization. The researcher has selected simple factorial design for the study to study the effects of attribute variable as well on the dependent variable.

Keywords: Contextualized Text: Text used in the classroom made in accordance with local social scenarios.
JEL Classification: Z130

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Introduction

English language has become a “lingua franca” and is used between non-native speakers these days. Naoki Kameda suggests “Focus on English versus Japanese English already has become a language spoken by so many people in so many places, as we have already observed, it’s a language spoken by more people as a second tongue than a first.” (Naoki, 2001). English is the official language of government, bureaucracy and military in Pakistan (Rahman, 1996). It is also the language of education, business, law, administration, media, marketing and communication in Pakistan (Coleman, 2010; Khan, 2011; Malik, 1996; Mansoor, 2005; Rahman, 2004). In view of this explanation there are several languages which are performing this task but with some geographical limitations like Spanish between South America and part of North America, French among Canada, some parts of Europe and some parts of Africa, Chinese in some parts of Asia. English is the only language which is being used as a means of communication irrespective of purpose and geographical limits all across the world. “The majority of these countries still use English as official language, and consider it their second language” (Miriam, 2001). In the context of Pakistan, English Language has become inevitable and is considered as a yardstick to measure an individual’s competence for success in his profession regardless of his field.

English Language has four basic skills. These skills are integrated out of which two are considered receptive skills and the other two are considered as productive skills.
The above mentioned skills show that Listening and Speaking skills are connected together while Reading and Writing Skills are mutually linked up. It also mentions receptive and productive skills. The study focuses on Thinking Skills only at tertiary level of Pakistan. English Language Teaching has been an area of major concern among educators in recent times. The very concept of skill based teaching itself is relatively new in the country. A handful of researchers are working on teaching methodologies and their effectiveness and impact on students’ learning at different levels of education. Researchers in Pakistan have started working on skill based teaching of English Language and also skill based testing. Yousuf, (2012) suggests in his doctoral research about the pivotal role of skill oriented language teaching Strategy in improving language learners’ competency.

Teachers have been trying to come up with modern and effective strategies of teaching writing skills to the students coming from a variety of educational, social and economical backgrounds. These students lack the pre-requisite skills and knowledge regarding the target skill, in addition to this lacking, books that are available and used for the purpose are non-contextualized; written by foreign writers. In order to develop competence and proficiency among students over business writing, understanding the scenario and cases that are presented to them become important. Students do not seem to understand the information provided for business writing activities and as a result memorize the content. Many methods of teaching of English can be used for developing thinking skills, one of these methods that are comparatively more modern in terms of time is Contextualized Teaching Learning (CTL).

**Purpose of the Study**

The Purpose of the study was to document, explore and describe the impact of contextualized text on students’ learning of thinking skills at tertiary level.
Literature Review

Hutchinson and Waters, 1987 maintain that there are various successful occasions where practitioners of English for Specific Purposes (ESP), while designing a course conduct need analysis to find out learners’ real needs before incorporating the course contents in the syllabus. English for Business Purposes, as obvious for its name, is that type of language that is particularly used in business setting. Different business organizations may have different organization culture but one thing has become inevitable now and that is the language. Majority of international trade is carried on and recorded in English Language. English for business purposes has its own vocabulary and words sometime become so technical that only a student of business administration can understand them. Even in business, different aspects of business may have different vocabulary. For example in Business Finance, the language used will be difficult even for a customary business graduate. For that one has to be a finance graduate. Language for Business and Corporate law would be more technical. Language for banking is different than marketing or advertising. Therefore it has become a must now for all business graduates to know English for Business Purposes.

Thinking Skills

Thinking Skills are the mental procedures we use to do things like: resolve problems, make decisions, ask queries, device strategies, pass opinions, systematize information and create new ideas. Often we are not conscious of our thinking – it happens involuntarily -but if we take time to contemplate what is going on we can become more proficient and more creative with our minds. Thinking skills are generally not given its due importance in solving everyday problems. We only realize its importance when we get in a fix or reach a wrong analysis or conclusion only because of lack of comprehension and creative thinking. We can resolve these problems through using our cognitive capacities and thinking more creatively rather than depending on usual
ways of seeing things. Thinking skills, in simple words are tools that enable us to apply existing knowledge to a new situation. It makes us capable enough to analysis and adaptation. It is also called Mata cognition which allows us to get to know our thinking skills, acquire new knowledge and to apply it in novel problems for their resolution. Growth and development in this area provides deeper understanding of the principles and result in acquisition and retention of expert knowledge. Smyth et al. suggest.

“The ability to generate spatial representation is important in our ability to construct analytical representations of our surroundings. When entering a problem space, means-ends analysis permits the problem solver to eradicate the differences between the preliminary state and the goal state by integrating both divergence reduction and the creation of sub goals”. (Smyth et al., 1994).

In the words of Graddy “Cognitive flexibility allows an individual to convey knowledge to new situations. Cognitive flexibility can be defined as the ability to spontaneously restructure one’s knowledge in many ways, inadaptive response to radically changing situational demands”. (Graddy, 2001). This skill of responding to new situations and problems can be attained by learning the art of connecting and relating thoughts and ideas together to reach logical conclusion. Getting cognitive awareness is also important as it makes us able to relate and apply several concepts of other domains and areas to other different contexts like applying mathematical knowledge to problems related to physics. (Anderson, 2000) suggests that“reproductive thinking” can be avoided easily through cognitive flexibility. He defines the term reproductive thinking as “specific routine that students develop in problem solving that do not transfer to novel demonstration”. 
Importance of Critical Thinking for Education/Language Learning

Literature highlights language skill as a contributing cause to proficient critical thinking skills (Feuerstein, 2007; Nisbett, Peng, Coi & Norenzayan, 2001). This entails that at university level the demands for students to critically reason and argue about topics in an academic context and good language skill influenced by language capability are vital. According to Pienaar (2001), critical reading and understanding at Higher Education level requires:

- Elaboration on an argument and developing its implications
- Understanding, analyzing and evaluating arguments and opinions
- Supporting general assertions with details
- Recognizing the central idea in a work

Definitions of Contextualization

definition proposed by Mazzeo, Rab, and Alssid (2003): “A diverse family of instructional strategies designed to more seamlessly link the learning of foundational skills and academic or occupational content by focusing teaching and learning squarely on concrete applications in a specific context” (Mazzeo et al., 2003, pp. 3–4).

In any one program, contextualization of basic skills instruction includes one or more of the following components: interdisciplinary learning (Berns & Erickson, 2001; National Council for Workforce Education & Jobs for the Future, 2010), use of students’ informal, out of-school knowledge (Goldman & Hasselbring, 1997), active, student centered learning (Dirkx & Prenger, 1997; Dowden, 2007), student collaboration (Johnson, 2002), authentic assessment (Johnson, 2002), and teacher collaboration to identify real world examples (Orpwood et al., 2010).

The aim of contextualization is to generate conditions for more valuable learning, expressed for example in higher grades and rates of retention in courses, and through succession to more advanced course work. Whether instruction is contextualized or integrated, the correlation of basic skills instruction to applications and life goals is reliable with constructivism, which places students’ interests and needs at the center of education (Dewey, 1966; Dowden, 2007).

The theoretical literature suggests that both cognitive and affective methods bring about the expected improvement in learning outcomes. One of the most important tools in teaching a course is the textbook or relevant material. Most of the teachers that were contacted by the researcher of this study came up with a common complaint which was unavailability of material which causes unpreparedness in teachers which ultimately lead to disinterestedness among the teachers towards contextualization. Do ESP textbooks really exist? This is the fundamental question Johns addresses. One of the basic problems he presents is that “ESP teachers find themselves in a situation where
they are expected to produce a course that exactly matches the needs of a group of learners, but are expected to do so with no, or very limited, preparation time”. (Jones, G., 1990).

Curriculum of Business Communication in Pakistan

Business Communication is a compulsory course at MBA level all around the world. Different universities may use some other terms for that but the core idea remains the same. Higher Education Commission (HEC; monitoring body for universities in Pakistan) has laid down some guidelines for teaching Business Communication at MBA level. After a critical study of these guidelines one point can be observed that HEC has set a curriculum for MBA students to improve their written communication. It has been a proven fact that every industry wants to see polished communication skills. Importance of communication skills can never be denied in any field of life. Different experts in Pakistani corporate world have expressed the need of these skills on more than one occasion. Some of them have been so blunt that they said that they did not need such graduate who could not write even one letter properly. HEC is concerned about such issues and has been trying to develop communication skills. Current curriculum of Business Communication emphasizes on such writing skills that have been the backbone to any industry. It highlights on skills like negotiation skills, letter writing, report writing and most importantly persuasive skills. Persuasion is a very difficult art and in every industry, at all levels this art is most needed. In fact this skill is required in our personal life for interpersonal personal communication as well.

Objective(s) of the Study

- To provide research in Pakistani context regarding learning of Thinking Skills through contextualized text.
- To investigate the relationship between contextualized text and students’ thinking skills.
- To measure the relationship between students’ socio economic status and their thinking skills by teaching through contextualized text.
• To provide empirical evidences of teaching thinking skills of English through contextualized text.
• To provide curriculum developers tested suggestions regarding contents of teaching thinking skills at tertiary level.

Research Methodology

True experimental design was adopted for the research to explain the relationship between dependent and independent variables. Descriptive statistics were used to convert the data from mere wordy data into statistical one in order to make it measurable and statistically provable. ANOVA\(^2\) was used to make credible inferences from the data obtained. Simple Factorial Design, “one of the true experimental designs” has been adopted for the study. (Ary. D, et al 1990).

Justification of the Selection of the Research Design

In the context of this study the dependent variable is: Students’ thinking skills and independent variable is contextualized text. Researchers have proved that only independent variable may not have sole effect on the dependent variables. Rather involvement of attribute variables must also be documented to circumvent artificial simplicity in the experiment. Artificial simplicity hampers the extent of true effects of the treatment on the dependent variable. Socioeconomic condition of the subjects is the attribute variable in the study. Factorial Design studies the impact of attribute variable(s) on dependent variable along with independent variables, the same design was selected for the study. “Social researchers often use factorial designs to assess the effects of educational methods, whilst taking into account the influence of socio-economic factors and background”. (http://explorable.com/factorialdesign.html). Second, the research demanded study of effects of more than one variable, manipulated

\(^2\)ANOVA: Analysis of variance
simultaneously, on dependent variable; factorial design is most suitable for the purpose. Third, along with the reasons stated, the factorial design also increases generalizability of the research; same was used for the study. A factorial design is one in which two or more variables are manipulated simultaneously in order to study the independent effect of each variable on the dependent variable as well as the effects due to interface among various variables. Factorial designs are of two types. In the first type of design one of the independent variable may be experimentally manipulated. In this case the experimenter is mainly interested in the effect of the single independent variable but must take into deliberation other variables that may manipulate the dependent variable. Characteristically these other variables are attribute variables. Building the attribute variables into a factorial design not only increases the accuracy of the experiment but also its generalizability because one is able to determine whether the treatment has equivalent effects over all levels, the generalizability of the experimental findings is improved.

Research Question

Does teaching contextualized text develop Thinking Skills in the learners at tertiary level?

Hypotheses

I. \( H_1 \): Contextualized text facilitates learners in developing thinking skills than that of non-contextualized text.

II. \( H_0 \): Contextualized text does not facilitate learners in developing thinking skills than that of non-contextualized text.

Population

The accessible population for this study is all undergraduate students of public Sector Business Schools of Karachi while the target
population of the study is all undergraduate students of public sector business schools of Pakistan. One public sector business school of Karachi was randomly selected for the study using Simple Random Sampling technique from which 80 students were distributed in two groups; control and experimental groups with 40 students in each group. The adopted sampling technique is probability sampling.

**Research Instruments**

The research instruments that have been used for the study are:

- Questionnaire for experimental and control group to find out their socio-economic status.
- Contextualized Text
  Contextualized text was developed by the researcher and got it approved by three subject specialists; to make the text valid.
- Achievement Test

At the end of the teaching of each group, one achievement test was administered to measure the effects of the contextualized text on their thinking skills i.e. once in the last class of control group teaching process and second time same test was administered in the last class of experimental group teaching process. Researcher selected post test only design which does not require a pre-test. This achievement test had 8 questions in total with 7 questions containing different contextualized situations and one question of MCQs (Multiple choice questions). Maximum marks of the test were 100 and the students had 3 hours to finish it. Two ways ANOVA was administered to find out the improvement in learners’ thinking skills which has been discussed under Analysis of the Data.

**Variables and Justification**

The researcher studied the relationship of the variables given below:

- Contextualized text.
- Students’ thinking skills.
• Socioeconomic status of the students.

**Analysis of the Data**

**Figure 1.**

*Achievement test scores of control group*

Figure 1 represents respondents of Control Group on X axis and mean of obtained scores of the respondents of Control Group on Y axis. Total number of respondents shown is 36. Mean of lowest score is 6.9. Maximum respondents obtained mean score between 7.7 and 7.9. The graph shows consistency of the scores as well as variability of the respondents. It depicts reliability and consistency of the tool.

Figure 2 shows respondents of Experimental Group on X axis and mean of obtained scores of the respondents of the Experimental Group on Y axis. Lowest mean score is 9.19 while highest is 10. Data falls consistently between 9.23 and 9.5. This depicts consistency of the data. The result represents reliability and consistency of the tool.
Figure 2.
Achievement Test scores of experimental group

Comparison of Fig. 1 and 2

Comparison of both the graphs shown in fig. 1 and 2 represents that the tool; that was achievement test, was reliable as the data is consistent. Variation in mean scores has also been found which depicts understanding of the subjects regarding the course content taught to them during the experiment. Maximum data, in case of Control Group (fig. 1) falls between 7.7 and 7.9 while for Experimental Group (fig. 2) it falls between 9.23 and 9.5. Subjects of the Experimental Group managed to score higher than Control Group which represents their understanding of the concepts, ability of reading comprehension and thinking ability.

Table 1.
Table of Significance

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Use of Contextualized tool for teaching Business Writing</th>
<th>Mean of obtained scores in achievement test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of Contextualized tool for teaching Business Writing</td>
<td>Pearson Correlation</td>
<td>Sig (2-tailed)</td>
</tr>
<tr>
<td>Mean of obtained scores in achievement test</td>
<td>Pearson Correlation</td>
<td>Sig (2-tailed)</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.01 level (2-tailed).
Table 1 is the result of test of significance. Pearson correlation was used to find out the relationship between variables i.e. use of contextualized text and mean of obtained scores of both control and experimental groups. The table demonstrates positive relationship between the two variables shown in the table by the value 0.958. The level of significance is 0.01. P-value in the table is 0.00. The estimated co-efficient of correlation is 0.958 which signifies existence of strong relationship between contextualized text and achievement of the students. Level of significance i.e. 0.01 in the table illustrates strong significance of the test. P-value in the table i.e. 0.00 shows that null hypothesis is rejected leading to the conclusion that strong positive correlation between the variables exists.

Table 2.
Table of Significance

<table>
<thead>
<tr>
<th></th>
<th>Mean of obtained scores in achievement test</th>
<th>Socioeconomic Status of the students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean of obtained scores in achievement test</td>
<td>Pearson Correlation</td>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>N</td>
</tr>
<tr>
<td>Socioeconomic Status of the students</td>
<td>Pearson Correlation</td>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>N</td>
</tr>
</tbody>
</table>

Table 2 shows relationship between Socio-economic Status (SES) of the students and their achievement in the test in terms of scores. Pearson correlation was used for the test of significance. Co-efficient of correlation in the table is 0.030. This value represents weak relationship between the two variables. P-value is 0.805 which is greater than 0.05 (thresh hold value) and depicts that there is no relationship between the variables. It leads to the logical analysis that the two variables that are SES and Students' achievement in the test do not have any significant relationship. The achievement of the students in the test does not vary because of their socio-economic status.
Table 3.
_Hypothesis Testing for Thinking Skills: Analysis of Variance_

<table>
<thead>
<tr>
<th>Thinking Skills</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum of Squares</td>
<td>df</td>
</tr>
<tr>
<td>Between Groups</td>
<td>53.174</td>
</tr>
<tr>
<td>Within Groups</td>
<td>2.003</td>
</tr>
<tr>
<td>Total</td>
<td>55.177</td>
</tr>
</tbody>
</table>

H₁: Contextualized text facilitates learners in developing thinking skills than that of non-contextualized text.

H₀: Contextualized text does not facilitate learners in developing thinking skills than that of non-contextualized text.

Thinking Skills of the students were tested in the whole achievement test. Table 3 is Analysis of Variance (ANOVA). Column 01 of the table shows groups. Column 02 contains sum of squares. Column 03 represents degree of freedom. Column 04 shows mean of square. Column 05 contains F ratio and column 06 depicts significance of the test. Significance Value is 0.00 which depicts that null hypothesis is rejected. F ratio obtained i.e. 1858.261 (highlighted in the table) is also significant which suggests that the results of the findings are significantly valid. The table shows difference between groups is higher than the difference within group and hence the obtained F ratio explains the mean of experimental group is greater than the mean of control group. Therefore the test shows that the students taught through contextualized text improved their thinking skills significantly than those taught through non-contextualized text.
Table 4.

Effect of SES on Thinking Skills with the Treatment: Two-way Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>53.452*</td>
<td>5</td>
<td>10.690</td>
<td>408.969</td>
<td>.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>1928.454</td>
<td>1</td>
<td>1928.454</td>
<td>73773.563</td>
<td>.000</td>
</tr>
<tr>
<td>Treatment</td>
<td>53.174</td>
<td>1</td>
<td>53.174</td>
<td>2034.170</td>
<td>.000</td>
</tr>
<tr>
<td>SES</td>
<td>.175</td>
<td>2</td>
<td>.087</td>
<td>3.346</td>
<td>.041</td>
</tr>
<tr>
<td>Treatment * SES</td>
<td>.103</td>
<td>2</td>
<td>.051</td>
<td>1.969</td>
<td>.148</td>
</tr>
<tr>
<td>Error</td>
<td>1.720</td>
<td>65</td>
<td>.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1983.641</td>
<td>72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>55.177</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = .969 (Adjusted R Squared = .966)

Table 4 is the result of Test of Between-Subjects Effects for 2 Way ANOVA. Column 01 of the table is source. Column 02 shows sum of squares. Column 03 represents degree of freedom. Column 04 depicts mean square. Column 05 of the table gives values of F Ratio and column 06 shows value of significance. The table illustrates that treatment given to the group contributes significantly in students’ learning of thinking skills independently as F ratio shows 2034.170 with significance value 0.000 which is less than the threshold value of 0.05. This indicates rejection of H\(_0\) and acceptance of H\(_1\). F ratio obtained for SES is 0.87 and its value of significance is 0.41. When combined effect of independent and attribute variables i.e. treatment and students’ socioeconomic status was tested, the obtained values (F ratio: 1.968; Value of Significance: 0.148) show that SES does not have any effect with the treatment in the learning of the subjects. It suggests that contextualized teaching is the only factor that impacts students’ learning of thinking skills.
Discussion

Contextualized text is the independent variable of the study. The impact of the independent variable was observed on the dependent variable—thinking skills. In the study, socioeconomic status of the students is not the variable of interest for the researcher but it is an attribute variable that might affect the findings of the study. Therefore the researcher took it into account to make the findings of the study more valid and credible. The results of the data analysis show existence of strong causal relationship between contextualized text and achievement of the students. The tests also suggest the two variables that are SES (Socio-Economic Status) and Students’ achievement in the test do not have any significant relationship. The achievement of the students in the test does not vary because of their socio-economic status. They also represent that SES does not have any effect with the treatment in the learning of the subjects. They imply that contextualized teaching is the only factor that impacts students’ learning of Thinking Skills. All other possible factors were controlled by selecting random technique of sample on public sector business school where students are more selected on merit only rather than fee affordability. They generally come from more or less the same academic background. The researcher also randomized the selected sample for the controlled and experimental groups. No criterion was made by the researcher in assigning subjects to the control or experimental groups. The students were not informed about the groups whether they are part of controlled group or experimental group. This was done to avoid Hawthorne Effect. The study was conducted at a neutral venue to avoid any effect of place or physical environment.

To study the causal relationship among these variables the researcher selected the most appropriate population which was students studying the course of Business Communication at tertiary level in Pakistan. From the whole population the researcher selected the accessible population in order to maintain practicality and access.
till the end of the study which was all the public sector universities of Karachi. To make the sample more representative of the target population probability sampling procedure was adopted throughout the sample selection and group making. Simple random sampling technique was used at every step. For experimental study, at least two groups were required therefore a single public sector institution was selected randomly without any bias or pre-set criterion i.e. any criterion of selecting the subjects like their grades or CGPA etc. Subjects were selected who were registered in the course of Business Communication at undergraduate level. The most important aspect of every experimental study is randomization in selection of the subjects for the groups and the same was done by the researcher as well. Two groups were made for the experiment namely control group and experimental group. A neutral venue was selected to control extraneous variables that might affect the experiment. The purpose of selecting a neutral venue was to avoid any effect that their own class room or familiar physical environment might have on their teaching learning process. Duration of the class and total teaching hours were in accordance with the HEC recommendations. Control group was taught first to avoid the Hawthorne effect. Contextualized text was developed by the researcher and expert opinion was taken from three subject specialists. The text was piloted on sample like subjects and necessary changes were made as a result of pilot testing. Achievement test used as post-test was also piloted on the same population at the end of teaching process. Achievement test was also sent to subject specialists and necessary changes were made to make it more reliable after their review.

After instrument development and pilot testing, the researcher selected the most suitable research design after thorough study of the research methodologies which was Simple Factorial Design; one of True Experimental Designs. Eighty students were randomly selected as sample for the study from the population, and then randomized forty in each group; control and experimental group. Control group was taught by foreign authored non-contextualized text used in regular teaching practice in the universities and
The experimental group was taught by contextualized text. Students’ learning was analyzed through an achievement test.

In the light of the analyses it is evident that the use of contextualized text impacts students’ learning positively and creates opportunities of not only swift learning but also applying the concepts on real-time problems.

**Findings**

The findings of the study are based on the analysis that was done on the data found as a result of the experiment. Statistical data analysis was done through SPSS. The first thing to find out was the reliability of the tool. This was tested and the tool i.e. contextualized text was found to be reliable and consistent. The test has been discussed in figures 1 and 2 under the heading of Analysis of the Data show consistency of the tool. This is a comment on the validity of the text used in the classroom for teaching.

The relationship between contextualized text and students’ learning was tested and the findings suggest that a strong positive relationship between these variables exists. This finding suggests that students’ learning depends significantly on the selection of text used for teaching. If a non-contextualized text is used for teaching thinking skills, they tend to achieve less learning as compared to those who are taught through contextualized text. Thinking skill is one of the most difficult skills and for teaching this skill the most important and powerful tool that a teacher might have is the text. Therefore a teacher needs to select the text intelligently in order to facilitate students’ learning and interest.

Tables 3 and 4 show that the students taught through contextualized text improved their thinking skills significantly than those taught through non-contextualized text. The tables also suggest that SES does not have any effect with the treatment in the learning.
of the subjects. It suggests that contextualized teaching is the only factor that impacts students’ learning of thinking skills. This leads to the conclusion that socioeconomic status, along with independent variable does not impact dependent variables significantly.

**Conclusion**

This study was an attempt of working on contextualized text for English Language in general and English for business purposes in particular. This experimental study was conducted as an effort to produce some empirical evidences whether the idea of contextualization was workable in Pakistani setting and to what extent. It was also an endeavor to encourage scholars and English Language Teachers to go for contextualization in the field of ELT to make learning more effective and quick for the learners. Curriculum developers and text book writers should now turn to contextualized text books which improve students learning. This has been the need of the hour in Pakistan especially for curriculum developers and academic administrators to now change gear and start adopting newer and better methods and techniques for teaching. It was also an attempt to provide tested and authentic literature in the field of contextualized teaching learning especially in local context so that the researchers of education and applied linguistics can make use of it for further research. The study also tried to find out the hindrances that teachers face in developing and executing contextualized text in their classes. This document can be used as a reference for those who are a part of the academic administration to create willingness among them for adopting a new approach for teaching in Pakistan. Globally the idea of contextualized teaching learning is not absolutely new but in a developing country like Pakistan where curricula are hardly revised, it is a comparatively new study that has been conducted and presented with empirical evidences.
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CORPORATE SOCIAL RESPONSIBILITY AND SUSTAINABLE DEVELOPMENT: A REVIEW ON CHALLENGES AND OPPORTUNITIES
Vasanthi Reena Williams¹ and Nanjunda²

Introduction

The former Prime Minister of India, Dr. Manmohan Singh had stated during a meeting with business leaders that,’Corporate Social Responsibility must not be defined by tax planning strategy alone but should be defined within the framework of a corporate philosophy, which factors the needs of the community and the regions in which a corporate entity functions’.

An attempt has been made in this article to highlight the need for Corporates to focus on their Corporate Social Responsibility with the aim of providing and contributing towards an empowered society rather than just a fad. It is observed that conventional Corporate Social Responsibility programmes involve support for education, health care and environmental sustainability initiatives. However, all these initiatives aim at a more philanthropic and benevolent nature of the business houses rather than focusing on sustained development of the deprived, disadvantaged and underprivileged sections of the society. It is proposed that a greater amount of transparency and consistency be introduced by companies with the concerned government also pooling in by introducing suitable legislations and recompense to the business houses that

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take up effectual Corporate Social Responsibility initiatives that are helpful in creating a Public Private partnership (PPP) for planned national progress.

A country like India, where there is abundance of not only natural resources but also labour, population, and opportunities, a Public Private Partnership (PPP) can definitely serve its purpose through the channeled and regulated activities of CSR for ensuring inclusive growth. This is because; CSR is often understood as an initiative by the private sector towards society. It is taken for granted that the private sector or business houses have a commitment towards society which they need to fulfill through voluntary contributions to communities identified by them specifically for receiving certain benefits. This is because the justification for CSR activities is about building a sustainable business which in turn relies on healthy economies involving markets and communities.

The 11th five year Plan (India) defines inclusive growth to be “a growth process which yields broad-based benefits and ensures equality of opportunity for all”. The ministry of corporate affairs and industry chamber, Confederation of Indian Industry (CII) had recently come out with a study on the CSR in which the role of private sector in fostering inclusive growth and globalization has been recognized. Almost all major companies in India have a CSR programme in various sectors viz; education, health, livelihood creation, skill development, empowerment of disabled and woman (Siloyam and Othes, 2008). The Indian Government has been optimistic in addressing exclusion and undertaking policies to foster social and economic empowerment among various disadvantaged sections of the society through different corporate interventions. These labors have had some achievement, but, they have not completely addressed exclusion yet. Even though the caste economy has undergone changes gradually, some of its traditions persist still including caste based discrimination in health care services. Next in order to decrease the disparities among various
social excluded castes, experts feel improvements in asset and income levels need to be increased more swiftly with the help of more investment of corporate in social sector.

The term ‘Corporate Social Responsibility’ is more often used interchangeably with the term ‘Corporate Citizenship’ and further linked with the concept of Triple Bottom Line Reporting (TBL), a term which is used to denote framework for measuring company’s performance against economic, social and environmental parameters. The concept of Triple Bottom Line which interprets as Profit, People and People has two more aspects included namely social and environmental concerns. An organization wishing to follow up on TBL would imply a CSR activity. Triple bottom line reporting makes companies accountable for economic, social and environmental effects of doing business. This helps create commitment towards the sustainability venture undertaken by the Corporate. It is recommended that the TBL concept can be constructive and beneficial to corporate implementing CSR activities.

Even under global economic recession India’s economy is fast growing at a rate of 8.3%. Indian market is an attractive center for many global companies for huge investment. India’s recent economic reforms has attracted in increasing the foreign direct investments to the country. It has given an opportunity for more companies to enter into India thereby we can expect more CSR in the days to come. In this globalization period CSR is getting a new concept. CSR has given a new brand image to the companies for their market. But it is generally felt that association with social relevant causes should not be just for tax exemption exercise of the companies. Some study reports have revealed that CSR activities has increased consumer loyalty, company image, marketing. In a country of having severe poverty, illiteracy and other serious problem, government alone can’t solve these problems, corporate also joint hands with the government. Whatever rules Govt can bring. The obligation must be beyond the
statutory. Companies must voluntary involved with strong social commitment. It is also found that majority of the Indian customers would prefer the companies involving in social issues. Also consumers are ready to pay more for such products of companies involved in social causes (Gupta. S. & Sharma. 2009).

The present Scenario in India has many companies (over 90%) who have put in their own individual and collective efforts in promoting Corporate Social Responsibility activities throughout the country. The foremost areas in which Corporates are involved in Corporate Social Responsibility activities include livelihood promotion, education, health, environment and women empowerment. The Tata Group has been promoting inclusive growth since long. ITC, one of the major companies in India presently have been focusing on empowering farmers and has made this initiative a vital part of its business strategy. HUL has initiated ‘Shakti Amma’, using micro enterprises to strategically uplift the rural entrepreneur and in turn generate demand for consumer (FMCG) products in rural markets. Software giants Wipro and TCS have developed software that assists in better knowledge dissemination at the primary and secondary school level. Banks have been promoting micro-credits through very accommodating and supportive schemes to assist migrant laborers and street vendors take up entrepreneurship in the form of auto loans (light vehicles for taxi, auto, goods carrier etc) and also for setting up small business outlets for street vendors.

Presently the trend seen in the corporate scenario is the formation of foundations which are run by the respective corporate houses which are totally dedicated towards Corporate Social Responsibility activities. These foundations work as an NGO in promoting Corporate Social Responsibility activities and have become a supportive stem in the subsistence of the business house. The Tata Group, ITC, Reliance Industries, SAIL, Wipro, L&T, Procter and Gamble, Bennett and Coleman, to mention a few who have accomplished several initiatives through their respective Foundations. The trend of
evaluating the contributions of a corporate towards Corporate Social Responsibility is slowly becoming a conventional activity being included by business houses to ensure transparency and promote more such activities. However Corporate Social Responsibility activities have not been made mandatory for business houses but only directional for them to follow. In fact the Companies bill which called for a 2% compulsory Corporate Social Responsibility spending proposal led to intense debate with majority of the Corporates favoring voluntary Corporate Social Responsibility spending. However the million dollar question whether Corporate Social Responsibility activities fulfill their objectives of social responsibility can only be ascertained when the outcome of such measures can be measured against its effect on society.

The following are four interesting and provoking chronicles that focus not on the theoretical aspect of a Corporate Social Responsibility initiative but a practical and implementable mission and venture that can help the Corporate in promoting sustainable development and the rural masses in sustainable economic growth. A group of women in Namchi Sikkim, under the guidance of NEDFi (North Eastern Development Finance Corporation Ltd), Namchi have initiated manufacture and selling of designer candle that has helped them become financially independent. The concept of designer candle making was the brainchild of Mr A.K Das, Assistant General Manager at NEDFi. The first attempt at this project was to identify around 20 women who has entrepreneurial qualities and then by imparting training to these selected women. The first of such training in designer candle making was held in August 2012 at Namchi by the NEDFi, under its Corporate Social Responsibility initiative. Presently the training programmes continue to attract women from in and around Sikkim and have helped in making a difference to the women in the hill areas.

Another very interesting and motivating chronicle involving tribal women living in a cluster of village between Itarsi and
Hoshangabadin, a remote part of Madhya Pradesh, shows that a little awareness and opportunity provided can go a long way in ensuring sustainability and an effective inclusive strategy. The article by Ireena Vittal, who is presently working on Indian agriculture and urban issues, highlights the trials and tribulations of these tribal women and how they are addressing these issues through vegetable farming, poultry farming and a mushroom cultivation. These activities are being encouraged and aided by an NGO Pradan, which is a leading three-decade old institution focusing on development in villages. It ensures that every women in this cluster of village is part of the 928 and odd Self Help Groups present there. The apex body named Narmada Mahila Sangathan. These initiatives have ensured education for the children and also a college.

As Warhust (2001) points out, the three major elements of CSR are product use which focuses on contribution of industrial products which help in the well-being and quality of life of the society, business practice which focuses on good corporate governance and gives high impetus for the environmental well-being and equity which tries for distribution of profits equitably across different societies. Thus CSR exhorts firms to diverge from their sole aim of maximising profits and to lay more importance on improving the economic and social standards of the community in their countries of operation (Sandeep & Rakesh 2002). Thus the focus is more on ethical practices expected of a business house. Where-as Inclusive refers to the ability of the system to bring together opportunities and capabilities which would help sustained growth. It points out improvement in the governance model. But inclusive growth cannot be achieved by government alone. (Bhujbal and Sharma,2011). Write “The government being only one of the three pillars of the Governance Model requires support of other two actors as well for a Sustained Inclusive Growth.

3-Ireena Vittal (2013). Rural Lessons for the Urban Elite, Indian
It requires an optimal blend of three sets of Actors and their respective responsibilities. These are Government Social Responsibilities (GSR), Corporate Social Responsibilities (CSR) and Public Social Responsibility (PSR). Apart from Government Responsibilities (GR), which include law and order; defense, foreign relations etc. the government should also pay special attention to GSR, Government Social Responsibility for Inclusive Growth” (Bhujbal and Sharma, 2011).

Some of the big Indian corporate like Infosys, WIPRO, TATA, have become a kind of role model in CSR activities in India. Some of them have really done wonders in the selected social sectors. Also some reputed companies are spending more than 15-20% of their profit for social service! All though various Indian corporate sector involved in CSR activities; it is not enough when compare to their actual financial capacity. In addition companies have institutional and other problems in having CSR policies. Further, some Companies’ social involvement also helps for inclusive growth and eradicates social exclusion in the country. Companies’ social presence will help the company in increasing stronger financial performance, social accountability, reputation and branding etc. This is the time to think to involve small and medium scale industries to enter into CSR also. They can take-up small projects at local level using their business presence and network. Also they can share their human and technical skills with the local NGO’s. Even they can train the NGO’s also. Still it is a dearth need of CSR in some untouched sectors including human rights, poverty eradication, rehabilitation, training, tribal development, etc which need more money and time.

It is observed that the primary focus of a majority of the Corporate Social Responsibility activities being empowerment and upliftment of rural women. The other significant focus has been on providing education for the rural masses. Undoubtedly, Education plays a vital role in developing the economy of any country, however, the education being imparted should ensure employability. According 4-Globsyn is a partner company to NSDC.
to a study by Globsyn, India will have the world’s largest working population by 2030. Yet another study by Ernst & Young states that out of 40 million people registered with employment exchanges, only 0.2 million get jobs. This employment gap is due to the mismatch between education and the skill required by Corporates. NASSCOM has stated that only 25 percent of fresh graduates are finding employment, fulfilling the industry requirements. Therefore, in addition to providing education through the Corporate Social Responsibility activities, Corporates should include imparting of the required skill set that can ensure employability among the youth.

The third interesting investigative research study on the agarbatti industry has caught the attention of SHG’s in South India. According to the study, the agarbatti industry in India today is worth Rs.3345 crore and growing at a CAGR of 15 percent annually. The study states that the sourcing model is characterized by several structural flaws. This industry is a source of sustainable livelihood to thousands of women. Production of agarbatti is labour intensive and is basically dominated by women in rural areas who roll out the agarbattis. This again is another area of business which can be tapped by Corporates for their Corporate Social Responsibility initiatives for sustainable development.

Another success story is that of Project Shakti, an initiative by Hindustan Unilever Limited. This project came into existence in 2001 with a dual aim of providing rural women with income-generating opportunities and also with the aim of increasing HUL’s rural distribution reach. The project envisages the selection of a Shakti Entrepreneur, more commonly called ‘Shakti Amma’ from certain identified villages. The women entrepreneur so chosen is given necessary training in book keeping, marketing etc and would also have to make in an initial investment of Rs.20,000. In addition to making

rural women economically and financially independent. Project Shakti also takes initiatives in creating awareness among the villagers on sanitation, hygiene practices and women empowerment. Presently, HUL's Shakti network at the end of 2008 was 45,000 Shakti Amma's covering 1,00,000+ villages across 15 states reaching more than 3 million homes.

The issue of CSR is constantly becoming a priority area for all emerging market CEO’s, with them making strenuous efforts to create social impact beyond their business activities. It has been observed by many social scientists that only those business houses that treat social investment as similar to other business investment, are the ones that are deriving the best out of their respective Corporate Social Responsibility activities and initiatives. The best examples are TATA, ITC, HUL, BIRLA, etc. This is because, just as investments in business projects are made, taking into account the outflows it can generate, these business houses apply the same seriousness towards implementation of their CSR programmes and hence they are successful in making social investments count. This also calls for accountability and performance measurement of such initiatives. The late Prof. CKN Prahallad, who conceptualized and envisioned ‘fortune at the bottom of the Pyramid’, would have doubly agreed about the co-creation of a corporate rural partnership in bringing about transformational changes in the economy. However, for a process to be called as co-creation, it is mandatory to have two or more parties capable enough to influence each other or interact with each other (Gronroos and Voima, 2013). A research by Kumkum Bharti et.al proposes rural development through involvement of Gram Sabha is a case of co-creation. The authors justify their stance by suggesting that to reach out to the base of the economic pyramid, organizations need to bring out radical transformational changes in the business approach. Live and existing examples include, Tata’s low cost housing, the portable and affordable ultrasound machines designed by GE.

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Vscan for rural masses, Mahindra Samriddhi which educated farmers about technological inputs and contemporary solutions to farming issues. Initiatives being taken by ITC and HUL (Shakti Amma) for rural development, to name a few that are creating a strong impact of their presence in rural India, through their respective Corporate Social Responsibility sustainability initiatives. Public enterprises in India have already begin spending 5% of its profits for social causes.

A country like India, where there is abundance of not only natural resources but also labour, population, and opportunities, a Public Private Partnership (PPP) can definitely serve its purpose through the channeled and regulated activities of CSR for ensuring inclusive growth. This is because; CSR is often understood as an initiative by the private sector towards society. It is taken for granted that the private sector or business houses have a commitment towards society which they need to fulfill through voluntary contributions to communities identified by them specifically for receiving certain benefits. This is because the justification for CSR activities is about building a sustainable business which in turn relies on healthy economies involving markets and communities.

**Conclusion**

Even though Indian corporate have been involved in CSR activities is not enough when compare to the financial capacity of the companies. Companies should voluntarily involved in a social cause rather than exempting from the tax benefits of the government. Companies should try to avoid unnecessary expenditure for public city and they can make their presence in the society through their social concern. Some of the big corporate like Infosys, VIPRO, TATA, have become a kind of role model in CSR activities in India. TATA group spending more than 40% of its profit for social service. They should be an example for other type of companies. Even though recent bill on CSR of the government is a good move we can’t completely depend only on corporate interventions in social issues.

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RELATIONSHIP BETWEEN STOCK MARKET VOLATILITY AND MACROECONOMIC VARIABLES: EVIDENCE FROM PAKISTAN

Muzammil Hussain¹, Bedi-uz-Zaman² and Nisar Ahmad³

Abstract

This study explores the relationship between stock returns volatility and macroeconomic variables in Pakistan. This study has used monthly observations covering the period from 2001-01 to 2011-06. First, Exponential Generalized Autoregressive Conditional Heteroskedasticity (2, 2) model is used to analyze the volatility in stock returns. Graph of news impact curve shows that higher risk is contributed toward negative shocks in stock market as compared to positive shocks of the same magnitude. In the next step the researcher has explored the macroeconomic determinants of stock market volatility through ARDL approach because variables are I (0) in addition to I (1). Results from ARDL approach revealed that macroeconomic variables are responsible factors in explaining stock market volatility. Inflation, real exchange rate and oil prices are found encouraging factors of stock market volatility while Industrial sector output and real supply of money affects the volatility negatively.

Keywords: Stock Market Volatility, Inflation, Real Exchange Rate, EGARCH and ARDL.

JEL Classification: E 440

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Introduction

A stock market is an organization or institution recognized for dealing in securities whether integrated or not. The stock exchange provides a physical place for investors to trade their stocks and it is a significance source to raise funds. Affiliation between the stock markets is increasing obviously from the preceding decade with the incorporation of general economies in the course of international trade, flow of capital and technological advancement (Chan et al., 1998). Volatility is a variable which swamps major monetary tools and performs a vital job in the numerous fields of finance. Volatility in stock returns refers to deviation in stock prices varies throughout a time (Zafar et al., 2008). Stock market progress relies on the health of financial system, macroeconomic solidity and also disturbs with the outside markets (Aliyu, 2012). Officer (1973) is one of the pioneer researchers who linked stock price volatility with economic indicators. He found a high volatility in the times of great depression in 1930s.

Generally stock markets of both developed and underdeveloped economies are volatile (Choo et al, 2011). The investors are interested to identify the nature of volatility. Different studies have shown asymmetric relationship between stock returns and volatility. Good news and bad news have different impacts on volatility (Campbell and Hentschel, 1992). Karolyi (2001) argued that decrease in stock prices lead to increase volatility in stock market. Bollerslev et al. (1994) and brooks (2008) found that negative shocks contributed to more volatility as compared to positive shocks of the identical magnitude.

Higher stock market volatility in recent years has enhanced the conversation on stock price movements in developed countries in general and particular in case of developing countries including Pakistan. Unlike the established equity markets of developed economies, the stock markets of Pakistan begin to broad quickly and responsive to issues like changes in economic activities, political
environment and macroeconomic variables. Several researchers underlined their consideration on the stock markets of emerging economies because stock markets of Asia provide good opportunities for foreign investment (Chiou-wei, 2011). Therefore, modeling stock market volatility is a very essential aspect in the developed as well as emerging economies.

The dynamics of stock market volatility is somewhat comprehensive and has a strategic meanings. Due to immense compass of volatility various issues of stock markets are discussed by researchers. General objective in this research is the investigation of the relationship between stock return volatility and macroeconomic variables. However, the following specific objectives are also framed in this study.

To investigate whether the nature of volatility is symmetric or asymmetric (impact of good news and bad news on stock market volatility).

To explore the relationship between stock market volatility and macroeconomic variables in Pakistan.

The evaluation of major assumptions of stock market and looking at the Pakistan history provides help for making choice about the appropriate variables and building econometric model to estimate the determinants of stock returns volatility in Pakistan. After review of information and objectives the following hypothesis are set:

H1: Stock return shocks have asymmetric effect on stock market volatility.
H1: There exists a significant relationship between stock market volatility and macroeconomic variables in Pakistan.
Capital Markets in Pakistan

The role of stock market is very important for any country. An efficient asset market improves the pecuniary strength of country by means of valuable management of resources. Stock market in Pakistan started in 1947 with the establishment of Karachi Stock Exchange (KSE). The other two stock exchange markets operating in Pakistan are Lahore stock exchange (LSE) and Islamabad stock exchange (ISE). LSE was set up in 1970 and ISE came into existence in 1989. KSE is the largest and most liquid exchange market operating in Pakistan where approximately 85% trade takes place. Nearly 670 companies are scheduled in KSE comprising a market capitalization of more than US$95.18 Billion (Rafique and Rehman, 2011). The companies belong to KSE correspond to different sectors of economy.

KSE 100 index is the most important standard to evaluate prices at Karachi stock exchange. The index is constructed with the stocks of 100 companies. It is a capital weighted index and the companies with maximum market capitalization are chosen. KSE provides data for a reasonable time period and it is also known as a well recognized market of emerging economy. The KSE was declared as the best performing world stock market in 2002 (Business Week).

Literature Review

According to Fisher’s Hypothesis, the market rate of interest included the projected inflation and expected real rate of interest (Fisher, 1930). As nominal rate of interest and rate of inflation moved one-to-one, then, real rate of interest was not affected by a permanent change in inflation rate in the long-run. Thus, it was concluded that stock returns and rate of inflation moved in the same direction. The relationship between exchange rates and stock returns is based on a simple financial theory. When the domestic currency decrease in

4-The international magazine
value against foreign currencies, prices of export products decline, and consequently, the volume of the country’s export will increase. A devaluation of the domestic currency has a negative relationship with return.

Liljeblom and Stenius (1997) examined the relationship between macroeconomic volatility and stock market volatility for Finland. GARCH model was used for the estimation of conditional volatility at stock market. This study found a significant linkage between macroeconomic volatility and stock market volatility and a predictive power in both directions.

Beltratti and Morana (2002) studied the relationship between stock market volatility and macroeconomic volatility. The variables used in this study were S&P 500 index, industrial production, CPI, federal fund rate, treasury bills and ten-year treasury bonds. A significant finding of this research was that there exist a significant relationship between stock market and macroeconomic volatility.

Chowdhury et al. (2006) explored how predicted macroeconomic volatility is related to the stock market volatility in Bangladesh. The study used monthly data on stock prices, CPI, exchange rate and industrial production for 1990:01-2004:12. The study used GARCH model and found that there exists unidirectional causality from industrial production volatility to stock return volatility. This study also found direction of causality from stock return volatility to inflation volatility.

Saryal (2007) examined the impact of inflation on the conditional stock market volatility in Turkey and Canada. GARCH (1, 1) and Quadratic GARCH model were employed for modeling stock market volatility. This study found that the greater the inflation rate, the higher is the volatility in the stock market.
Wang (2010) examined the linkage among macroeconomic volatility and stock market volatility for China. The study used monthly data on real stock return, real GDP, CPI and interest rate from the period 1992 to 2008. This study investigated the time-series relationship using EGARCH and lag-augmented VAR models. The study found no causal relationship between stock market volatility and real GDP volatility, bilateral causality between stock market volatility and inflation volatility and uni-directional causality from stock prices to interest rate.

Choo et al. (2011) tried to examine the relationship of stock market volatility with some macroeconomic variables in Japan. The study used daily data on Nikkei 225 index, currency exchange rate, oil price and gold price from May 1997 to July 2009. The study employed ten dissimilar models for forecasting. The study found no impact of macroeconomic variable on the volatility of Japan’s stock market and better results were obtained through simple GARCH (1, 1) model and suggested that GJR GARCH model was better in predicting volatility than simple GARCH (1, 1) model. This study recommended that macroeconomic variables did not improve the forecasting accuracy of GARCH (1, 1) which showed that macroeconomic uncertainty did not explain the volatility of Nikkei 225 Index.

Aliyu (2012) investigated the inflationary force in explaining volatility and returns of stock market. Additionally, this study explored the effect of asymmetric shocks using quadratic GARCH model. Variables of interest in this study comprised CPI and stock price index of the relevant country. The investigation covered the time of 1998:01 to 2010:05 and 1999:12 to 2010:05 for the Nigeria and Ghana respectively. GARCH (1, 1) model was used to model the volatility in the stock markets of both states. Outcomes showed that the impact of bad news on stock volatility was larger than good news for the case of Nigeria stock exchange (NSE), while for Ghana stock exchange (GSE) results were different. Study also proved the inflation as an important determinant of stock volatility in both the markets.
Falkberg (2012) analyzed the impact of macroeconomic variables on volatility and returns of Standard and Poor’s (S & P) 500 index. The other seven variables used with the exception of seasonal dummies were: default spread, inflation volatility, industrial production volatility, slope of the yield curve, implied volatility and volatility of 3-months treasury bills. The data used for this study was collected on monthly basis ranges from 1957:01 to 2011:08. Empirical outcomes were obtained by using VAR, granger causality test and some additional econometric techniques. The results also showed the presence of seasonal patterns plus asymmetric volatility. According to the results of this study no relationship was found between macroeconomic volatility and stock market volatility.

**Research Methodology and Data Description**

The formulation of accurate econometric methodology and apposite data handling are believed as the heart of every research work. Sample selection bias and selection of inappropriate estimation technique lead to biased results. The study used secondary data to scrutinize the determinants of stock market volatility in Pakistan. Equation 1 is the general form of model estimated in this research.

\[ H_t = b_0 + b_1(GMP)_t + b_2(RM_2)_t + b_3(OP)_t + b_4(REER)_t + b_5(INF)_t + u_t \] … 1

Here, stock returns volatility \((H_t)\) is the dependent variable in this study and the other independent variables are growth rate of industrial production \((GMP)\), real supply of money \((RM_2)\), oil prices \((OP)\), real effective exchange rate \((REER)\) and inflation rate \((INF)\). Data on these variables is used on monthly basis and it ranges from 2001:01 to 2011:06. The researcher has collected statistics from different data sources like statistical bulletin\(^5\) (State Bank of Pakistan), handbook of statistics on Pakistan economy\(^6\) (2011) and International Financial Statistics (IFS).

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\(^5\) http://www.sbp.org.pk/reports/stats_review/bulletin2011
\(^6\) http://www.sbp.org.pk/department/stats/PakEconomy_HandBook/2011
Modeling Conditional Variance

Engle (1982) in macroeconomic analysis originated unbalanced variance for a few categories of data. The case of uncertainty in stock returns is calculated via variances, and it varies with time. The researchers focus on hetroskedasticity in dealing with time series investigations.

Autoregressive Conditional Heteroskedasticity (ARCH) Model

Engle (1982) recommended ARCH model as a choice to the typical time series handling. The model allows the conditional variance to vary with time and implies that residual variance at present time rely on the precedent squared error term. ARCH (q) model examines the mean and variance as follow:

\[ \pi_t = \pi_0 + \sum_{i=1}^{n} \pi_i X_{t-i} + \varepsilon_t \] \hspace{1cm} 2

\[ h_t = \gamma_0 + \sum_{j=1}^{q} \gamma_j \varepsilon_{t-j}^2 \] \hspace{1cm} 3

\( X_{t-i} \) and \( \alpha_{i} \) signify k x 1 vector of independent variables and coefficients respectively. \( \varepsilon_{t} \) is independently distributed residual term.

Equations 2 and 3 are mean and variance equations respectively. One shortcoming of the ARCH model according to Engle (1995) is that it resemble extra moving average pattern than auto regression.
Generalized ARCH (GARCH) Model

Bollerslev (1986) introduced GARCH model. Model permits conditional variance to depend on its own lag value. Bollerslev says that volatility depends on both AR and MA terms. GARCH (p, q) model can describe as in equation 4:

\[ h_t = \gamma_0 + \sum_{i=1}^{p} \delta_i h_{t-i} + \sum_{j=1}^{q} \gamma_j \epsilon_{t-j}^2 \]  \hspace{1cm} (4)

Exponential GARCH (EGARCH) Model

Nelson (1991) planned EGARCH model. Variance equation of EGARCH model can be expressed in different ways. The model is superior to GARCH model because it ignores the non-negativity constraint and it doesn’t impose any constraint on the parameters. EGARCH also explores the impact of bad innovation that is very important in financial markets.

\[ \log h_t = \gamma + \sum_{j=1}^{q} \alpha_j \left| \frac{\epsilon_{t-j}}{\sqrt{h_{t-j}}} \right| + \sum_{j=1}^{p} \beta_j \frac{\epsilon_{t-j}}{\sqrt{h_{t-j}}} + \sum_{i=1}^{p} \delta_i \log(h_{t-i}) \]  \hspace{1cm} (5)

In the variance equation, \( \gamma, \alpha, \beta \) and \( \delta \) are the parameters. On the left side of equation log of series is taken to compose exponential leverage effect. The model is symmetric for:

\( \beta_1 = \beta_2 = \cdots = 0 \) Here, if \( \beta_j < 0 \) it represents more impact of negative news than positive.

Time Series Analysis

This study first checked stationary of data in order to avoid the prospect of spurious results. Advancement in econometrics with the passage of time expose that some of the time series are non stationary and to scrutinize such data with ordinary least square (OLS) leads to incorrect conclusion. Box and Jenkins (1970, 1976)
devised regressions at first difference stationary data with the rationale of spurious outcomes and supposed that by differentiating a series again and again non-stationary series transforms into stationary series. This method is defeat of costly information and for that reason Davidson et al., (1978) considered it the foremost weakness of this procedure.

Dickey and Fuller provided augmented edition of test to remove the problem of autocorrelation. They used additional lag term of dependent variable to solve the problem. AIC and SBC are used to determine the optimal lags. Three possible shapes of ADF test are given below. The diversity in the three equations is of elements $\delta_0$ and $\delta_2 t$ where an intercept term is and represent trend in a series.

\[
\Delta Y_t = \alpha Y_{t-1} + \sum_{k=0}^{n} \beta_k \Delta Y_{t-k} + \varepsilon_t
\]

\[
\Delta Y_t = \delta_0 - \alpha Y_{t-1} + \sum_{k=0}^{n} \beta_k \Delta Y_{t-k} + \varepsilon_t
\]

\[
\Delta Y_t = \delta_0 - \alpha Y_{t-1} + \delta_2 t + \sum_{k=0}^{n} \beta_k \Delta Y_{t-k} + \varepsilon_t
\]

Autoregressive Distributed Lag (ARDL) Approach for Cointegration

ARDL model is initiated by Pesaran and Shin (1999) and broaden by Pesaran et al. (2001). The model is useful for several reasons. It is not necessary for all the variables to be I(1) like Johansen technique. The model is appropriate if some variables are I(0) and others I(1). Estimation of ARDL involves two major stages. It tests long run relationship at initial stage and in the second stage long run and short run coefficients are estimated.

The General Form of Unrestricted ECM model in ARDL (p,q,r,x,y,z) formulation

\[
dy_t = \alpha + \sum_{i=1}^{p} b_{yi} dY_{t-i} + \sum_{j=1}^{q} C_{ji} dGMP_{t-j} + \sum_{k=1}^{r} D_{ki} dRM_{t-k} + \sum_{l=1}^{x} E_{k} dOP_{t-l} + \sum_{m=1}^{y} F_{m} dRER_{t-m} + \\
\sum_{n=1}^{z} G_{n} dINF_{t-n} + \theta_1 dHT_{t-n} + \theta_2 dGMP_{t-n} + \theta_3 dRM_{t-n} + \theta_4 dOP_{t-n} + \theta_5 dRER_{t-n} + \theta_6 dINF_{t-n} + \varepsilon_t
\]
Here,

- “d” is the first difference operator
- The coefficients of first fraction such as $B_i, C_j, D_j, E_i, F_i$ and $G_i$, correspond to the short run dynamics
- The coefficients $\theta_1, \theta_2, \theta_3, \theta_4, \theta_5$, and $\theta_6$, stand for the long run relationships between the variables
- And $u_t$ for white noise error term

Long run relationship is investigated using bound test under the procedure of Pesaran et al. (2001) its mechanism is based on F-test. If cointegration found in the general form of unrestricted ECM model in ARDL (p,q,r,x,y,z) formulation, then subsequent long-run model is projected:

$$ HT = a + \sum_{i=0}^{p} B_i HT_{t-i} + \sum_{i=0}^{q} C_i GMP_{t-i} + \sum_{i=0}^{r} D_i RM_{t-i} + \sum_{i=0}^{y} E_i OP_{t-i} + \sum_{i=0}^{x} F_i RER_{t-i} + \sum_{i=0}^{z} G_i INF_{t-i} + u_t $$

If the study found long-run relationship between the variables, the next step is to estimate short-run coefficients. The following ECM model is applied to estimate short-run relationship between the variables.

$$ dHT = a + b_{(ecm)} + \sum_{i=0}^{p} B_i (dHT)_{t-i} + \sum_{i=0}^{q} C_i (dGMP)_{t-i} + \sum_{i=0}^{r} D_i (dRM)_{t-i} + \sum_{i=0}^{y} E_i (dOP)_{t-i} + \sum_{i=0}^{x} F_i (dRER)_{t-i} + \sum_{i=0}^{z} G_i (dINF)_{t-i} + u_i $$

**Econometric Results and Explanations**

The study first checked descriptive statistics of monthly stock returns. The main purpose to check this statistics is to know about the sequential features of data. Table 1 explains the descriptive statistics for stock return variable.
Table 1:
Descriptive Statistics of Stock Returns

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Std.dev</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Jarque-Bera</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR</td>
<td>0.0172</td>
<td>0.0218</td>
<td>0.1908</td>
<td>-0.7667</td>
<td>10.5891</td>
<td>312.2123</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Statistics of skewness -0.7667 shows that data is skewed to left side. Value of kurtosis greater than 3 indicates leptokurtic distribution. Large figure of Jarque-Bera test and probability value do not accept the null hypothesis of normal distribution and confirms high volatile stock return at 1% significant level.

Modeling Stock Market Volatility

The first step in modeling volatility is to estimate mean equation and variance equation simultaneously. Mean equation is estimated through autoregressive moving average (ARMA) model. EGARCH (2, 2) model is estimated in the next step for the estimation of stock return volatility. The upper part in table 2 shows results of mean equation while the lower part explains variance equation. The model shows significant results for both mean and variance equation. Here the positive coefficient of $\alpha_1$ shows that 1% increase in the volatility at current time being followed by the 0.6299% increase in volatility in the last period.
**Table 2:**

Results of EGARCH (2, 2) Model of Stock Returns

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Std. Error</th>
<th>Z-statistics</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean equation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\Pi_0$</td>
<td>-0.3055</td>
<td>0.0423</td>
<td>-7.2367</td>
</tr>
<tr>
<td>$\Pi_1$</td>
<td>15.2879</td>
<td>1.8145</td>
<td>8.4254</td>
</tr>
<tr>
<td>$\Pi_2$</td>
<td>1.3830</td>
<td>0.1742</td>
<td>7.9407</td>
</tr>
<tr>
<td>$\Pi_3$</td>
<td>0.0109</td>
<td>0.0471</td>
<td>0.2268</td>
</tr>
<tr>
<td>$\Pi_4$</td>
<td>0.2756</td>
<td>0.0481</td>
<td>5.7425</td>
</tr>
<tr>
<td>$\Pi_5$</td>
<td>1.4125</td>
<td>0.1601</td>
<td>8.8279</td>
</tr>
<tr>
<td>$\nu(-1)$</td>
<td>-15.3643</td>
<td>1.8148</td>
<td>-8.4662</td>
</tr>
<tr>
<td>Variance equation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\gamma$</td>
<td>-11.4567</td>
<td>0.5017</td>
<td>-22.8387</td>
</tr>
<tr>
<td>$\alpha_1$</td>
<td>0.6299</td>
<td>0.1075</td>
<td>5.8622</td>
</tr>
<tr>
<td>$\beta_1$</td>
<td>0.1846</td>
<td>0.1371</td>
<td>1.3463</td>
</tr>
<tr>
<td>$\alpha_2$</td>
<td>0.3639</td>
<td>0.1935</td>
<td>1.8815</td>
</tr>
<tr>
<td>$\beta_2$</td>
<td>-0.5117</td>
<td>0.1335</td>
<td>-3.3331</td>
</tr>
<tr>
<td>$\delta_1$</td>
<td>-0.8472</td>
<td>0.0698</td>
<td>-12.1474</td>
</tr>
<tr>
<td>$\delta_2$</td>
<td>-0.7629</td>
<td>0.0604</td>
<td>-12.6368</td>
</tr>
</tbody>
</table>

Only the coefficient of $\beta_1$ is insignificant in explaining volatility. The negative sign link with the $\beta_2$ term shows more pressure of depressing shocks than the optimistic shocks. The model confirms the asymmetric volatility and statistically significant at 99% confidence level. Once EGARCH (2, 2) model is estimated for stock...
return variable after that researcher makes GARCH variances series to evaluate stock return volatility.

**Nature of Stock Return Volatility**

A graphic illustration of asymmetric instability toward positive and negative shocks is specified with “news impact curve” launched by Pagan and Schwert (1990). News impact curve conspires the next episode volatility \( (h_t) \) that might occur from a mixture of negative in addition to positive values of \( \epsilon_t \). Graph of this curve is shown in the figure 1. Here sig2 is the name for HT series. Figure 1 show more impact of bad news on stock market volatility as compare to good news of the same magnitude. The results are reconciled with the earlier studies of (Bollerslev et al. 1994 and Choo et al., 2011).

**Figure 1:**
*News Impact Curve of Stock Return Volatility*

ADF test is performed at level and first difference with trend and intercept. Results of ADF statistics are specified in table 3. Table shows mix results for the different regressors. Results of ADF test confirmed that some variables are integrated of order one I (1) while other of order zero I (0). Hence, ARDL approach devised by (Pesaran et al., 2001) is used to find the relationship among the variables. The relationship is investigated in three steps.

In the first step study applies Bound test to find out the long run relationship between the variables. Results of Bound test shows that in our principle model \( F_{(HT/GMP, RM2, OP, RER, INF)} \) value of F- statistics 7.183 is greater than upper critical bound and it rejects the null
hypothesis of no cointegration and this recommend existence of cointegration at 5% significance level.

Table 3:
Results of Unit Root Test

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Level</th>
<th>1st Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>HT</td>
<td>-3.8963**</td>
<td>-8.4859*</td>
</tr>
<tr>
<td>GMP</td>
<td>-7.2777*</td>
<td>-7.1069*</td>
</tr>
<tr>
<td>RM</td>
<td>-1.3463</td>
<td>-5.9915*</td>
</tr>
<tr>
<td>OP</td>
<td>-3.2273***</td>
<td>-4.8638*</td>
</tr>
<tr>
<td>REER</td>
<td>-3.4342***</td>
<td>-5.7071*</td>
</tr>
<tr>
<td>INF</td>
<td>-4.4151*</td>
<td>-7.4508*</td>
</tr>
</tbody>
</table>

*,**,*** shows 1%, 5%, 10% significance level respectively

Results of long run estimates using AIC are reported in table 4. The results are consistent with the Fisher’s hypothesis that in the long run inflation and interest rate affect the stock returns.

Table 4:
The long run results: ARDL (2, 0, 2, 2, 2, 1) selected based on AIC

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>T-Ratio</th>
<th>[Prob.]</th>
</tr>
</thead>
<tbody>
<tr>
<td>GMP</td>
<td>-0.0018</td>
<td>0.0275</td>
<td>0.0665</td>
<td>[0.941]</td>
</tr>
<tr>
<td>RM</td>
<td>-0.0463</td>
<td>0.0274</td>
<td>-1.6901</td>
<td>[0.094]***</td>
</tr>
<tr>
<td>OP</td>
<td>0.0215</td>
<td>0.0143</td>
<td>1.5027</td>
<td>[0.136]</td>
</tr>
<tr>
<td>REER</td>
<td>0.2777</td>
<td>0.0794</td>
<td>3.4983</td>
<td>[0.001]*</td>
</tr>
<tr>
<td>INF</td>
<td>0.0133</td>
<td>0.0061</td>
<td>2.2337</td>
<td>[0.028]**</td>
</tr>
<tr>
<td>C</td>
<td>-0.8529</td>
<td>0.4177</td>
<td>-2.0421</td>
<td>[0.044]</td>
</tr>
</tbody>
</table>

*,**,*** shows 1%, 5%, 10% significance level respectively
Table 4 shows a significant relationship of real money supply, real exchange rate and inflation rate with stock return volatility. The study also found a significant impact of inflation on stock market volatility. This finding is reconciled with the previous findings of Saryal (2007) made for Turkey and Canada and Aliyu (2011) for Ghana and Nigeria but conflicts with Rashid et al. (2011). Positive impact of exchange rate on stock market volatility is found. Bilson et al. (2001) conclude that a depreciation of the home currency has a harmful impact on returns. Vardar et al, 2012 obtained same results of exchange rate for Istanbul stock exchange.

After testing long run relationship ECM approach is utilized for short run dynamics. ECM value is significant at 1% significance level. Here coefficient of ECM is (-0.6445) and shows a meaningful pace of adjustment. It means if there is disequilibrium in the long run then due to shocks in the short run nearly 64% of adjustment takes place in one year.

**Table 5:**

**ECM Representation for the selected ARDL model**

<table>
<thead>
<tr>
<th>Regressor</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>T-Ratio</th>
<th>[Prob]</th>
</tr>
</thead>
<tbody>
<tr>
<td>dHT1</td>
<td>0.2787</td>
<td>0.0891</td>
<td>3.1278</td>
<td>0.002</td>
</tr>
<tr>
<td>dGMP</td>
<td>-0.0012</td>
<td>0.0178</td>
<td>0.0664</td>
<td>[0.947]</td>
</tr>
<tr>
<td>dRM,1</td>
<td>0.4498</td>
<td>0.1101</td>
<td>4.0842</td>
<td>[0.000]</td>
</tr>
<tr>
<td>dROP1</td>
<td>-0.0476</td>
<td>0.0181</td>
<td>-2.6371</td>
<td>[0.010]</td>
</tr>
<tr>
<td>dRER1</td>
<td>-0.3391</td>
<td>0.1213</td>
<td>-2.7948</td>
<td>[0.006]</td>
</tr>
<tr>
<td>dINF</td>
<td>0.0083</td>
<td>0.0026</td>
<td>0.3197</td>
<td>[0.750]</td>
</tr>
<tr>
<td>dINPT</td>
<td>-0.5497</td>
<td>0.2771</td>
<td>-1.9842</td>
<td>[0.050]</td>
</tr>
<tr>
<td>Ecm(-1)</td>
<td>-0.6445</td>
<td>0.0807</td>
<td>-7.9813</td>
<td>[0.000]</td>
</tr>
</tbody>
</table>

R-Squared 0.4748  
Mean of Dependent Variable 0.4036  
S.D. of Dependent Variable 0.0183  
DW statistic 1.9585  

<table>
<thead>
<tr>
<th>Regressor</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>T-Ratio</th>
<th>[Prob]</th>
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<tr>
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<tr>
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<tr>
<td>Ecm(-1)</td>
<td>-0.6445</td>
<td>0.0807</td>
<td>-7.9813</td>
<td>[0.000]</td>
</tr>
</tbody>
</table>

R-Bar-Squared 0.4034  
F(10, 107) 9.311[0.000]  
SBC 327.9161  
AIC 307.1362  

PAKISTAN BUSINESS REVIEW JAN 2015
Diagnostic tests are performed in order to check accuracy of model. Results of both LM version and F version statistics are given in table 6. In the final step CUSUM and CUSUMSQ tests are applied to observe the stability in parameters.

Table 6:
Diagnostic Tests

<table>
<thead>
<tr>
<th>Test Statistics</th>
<th>LM Version</th>
<th>F Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Serial Correlation</td>
<td>CHSQ(12)= 12.7713[0.386]</td>
<td>F(12, 91)= 0.9204[0.530]</td>
</tr>
<tr>
<td>B: Functional Form</td>
<td>CHSQ(1)= 1.9947[0.158]</td>
<td>F(11, 102)= 1.7539[0.188]</td>
</tr>
<tr>
<td>C: Normality</td>
<td>CHSQ(2)= 0.3495[0.821]</td>
<td>Not applicable</td>
</tr>
<tr>
<td>D: Heteroskedasticity</td>
<td>CHSQ(1)= 0.9923[0.319]</td>
<td>F(1, 116)= 0.9837[0.323]</td>
</tr>
</tbody>
</table>

Graphs of both these tests are shown in the figure 2 and 3. The figure shows that recursive residual are bounded by the critical boundaries and do not reject null hypothesis of stability at 5% significance level.

Figure 2:
CUSUM Test
Conclusion and Policy Implications

The present research is a step toward investigation of determinants of stock return volatility in Pakistan. Volatility in stock returns is estimated through EGARCH model and then the news impact curve is drawn to check the asymmetric behavior of stock returns. It is found that macroeconomic indicators are important in explaining stock market volatility. In particular the variables like inflation, real exchange rate and money supply are found significant determinants of stock market volatility. Coefficient of ECM (-0.642) shows a meaningful adjustment pace toward equilibrium. CUSUM and CUSUMSQ tests show that estimated parameters are stable at 5% level of significance. This study clearly suggests that reduction in inflation rate can reduce the volatility of stock market. Investor must consider monetary policy of the country in which he is interested to make investment. The results has also proved the equation of exchange i.e. MV=PY. The study also suggests that the investors should look at exchange rates and inflation as the major basis of risk involved in stock market. Financial managers and strategy makers should consider macroeconomic aspects whenever they formulate or implement financial stability.
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TRANSLATION, ADAPTATION AND CROSS LANGUAGE VALIDATION OF PERCEPTION OF PARENTS SCALE (POPS)

Samina Naz1 and Seema Gul2

Abstract

Perception of Parents Scale is extensively used in Psychological researches. Parents' encouragement and support for adolescent's independent functioning and self-governing behavior is referred as parental autonomy support. The present study aimed to translate and adapt English version of Perception of Parents Scale into Urdu and to assess its psychometric properties. Adolescents (N=120) from government and private sector schools/colleges were selected by using purposive sampling technique. Alpha reliability analysis of translated scales showed internal consistency of scales. For cross language validation an independent sample (N=100) was selected. They Results of the test re-test reliability and item total correlation revealed that perception of parents scale is reliable and valid measure for the measurement of parental autonomy support.

Keywords: Autonomy, Parental Autonomy Support, Self-Determination Theory.

JEL Classification: Z000

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2-Department of Psychology, International Islamic University, Islamabad, Pakistan
Introduction

Adolescence is a period marked with critical developmental changes. They constantly change, physically, mentally and psychologically. They start learning about the real world and strive to achieve independence from parental constraints and to be part of social groups (Santrock, 2004). They want to be recognized as adults with decision-making skill but at the same time they also want to part of a peer group. Furthermore, they need structure and support from their parents; however they show an apathetic behavior and dislike the caring actions of their parents.

During adolescence developmental tasks are successfully managed in those families who can resolve conflict effectively and encourage autonomous functioning. The idea about the significance of autonomy provided by parents for typical progress, has begun from individualistic societies that standardize for autonomy. Poor understanding of encompassing rules and values, whether Western or Eastern, collectivistic or individualistic attribute lower self-governance (Chirkov, Ryan, Kim & Kaplan, 2003).

Since parents are the main figures in the development of their children’s strong personalities, parent participation and effective relationship between parents and adolescents are offered as most the important prevention in the hope of avoiding emotional and social problems in children’s life. There has been an increased apprehension regarding the importance of self-determination for the relationship between adolescents and parents. According to self-determination theory for individual’s positive functioning, experiencing sense of choicefulness and autonomy in actions is vital (Ryan & Deci, 2002). Non-coercive, supportive family environment found helpful in promotion of self-determined behavior (Grolnick et al. 2007; Soenens & Vansteenkiste, 2005). Three basic instinctive psychological needs have been reported by self-determination theory, the need for competence, relatedness and autonomy. Self-determination theory
suggests that fulfillment of these innate needs is necessary for adolescent’s optimal functioning.

Various researchers while relying on self-determination theory emphasized on the crucial role of parents in promotion of adolescent’s autonomous functioning (Sands & Doll, 1996; Wehman, 1998). Research found the relationship between parent’s behavior and the psychological well-being of adolescents (Grolnick, Deci, & Ryan, 1997). Both father and mother play a vital role in a child’s development, as children acquire and learn skills from both parents. Research discussed that autonomy development only flourishes in supportive and understanding parent-child relationship. Striving to achieve independence is not most important way of achieving autonomy. Constructive autonomy development does not exclude or negate parental support and guidance.

Autonomy support allows parents to guide and structure adolescents as well as give them freedom, responsibility and volition. Consequently adolescents feel that they can take initiatives or decisions for available opportunities and their thoughts are appreciated by parents. Research found that the role of perceived autonomy support is crucial in deciding the degree of incorporation and internalizing values and development of autonomous and self-determined motivation (Legault, Green-Demers, & Pelletier, 2006). It is considered parents’ non-coercive, empathetic and encouraging attitude towards adolescents that enhance autonomous working (Soenens & Vansteenkiste, 2010).

Researchers (Ryan & Deci, 2008) believed that the autonomous functioning is a critical developmental progression for adolescents. Consequently, parents have to perform important task which is provision of support to their children’s autonomous functioning (Hmel & Pincus, 2002; Zimmer, & Mortimer, 2007). Few psychologists consider parental autonomy support, as the
encouragement of autonomous functioning within the Self-Determination (Silk, Morris, Kanaya, & Steinberg, 2003).

Based on the Self Determination Theory, Perception of Parent Scale (POPS; Robbins, 1994) developed to evaluate adolescents’ perceptions about their fathers and mothers’ provision of support for autonomy. The main objective of the current research is to examine how well the original version of the Perceptions of Parents Scales (POPS) fits the Urdu translation of POPS and contribute to the structure of Self-Determination Theory from Pakistani culture.

**Method**

**Objectives**

The present research aimed to investigate the following objectives:

1. Translation of Perception of Parents Scale (POPS; Robbins, 1994) in Urdu.
2. To establish the psychometric characteristics and cross language validation of POPS.

The present research was carried out in two phases. Phase-I dealt with the translation of POPS; while Phase II involved the cross language validation and determination of psychometrics of translated scales.

The translation of the scales was completed in four steps: 1) translation, 2) committee approach, 3) back translation, and 4) committee approach.

**Phase-I**

**Step I: Translation**

Five experts (proficient in both English and Urdu language) were approached for the translation of scales. Experts were briefed about the variables and also about the rationale of the research. Three experts then carried out the translation of the scales using a committee approach.
Arts and two English lecturers were selected as experts from the departments of Economics, English, and Urdu from the University of Wah, Wah Cantt; Quaid-i-Azam University, Islamabad; and International Islamic University, Islamabad. Experts were requested to emphasize conceptual rather than literal translation and to use brief and simple language.

**Step 2: Committee Approach**

As experts translated the scales, a committee consisting six members \((n = 6)\) was constituted to select the best translation for each item. This committee was consisted of the supervisor of the study, clinical psychologists \((n = 2)\), counselors \((n = 2)\) and the researcher herself. After selecting the best items which convey the similar meaning to the original, the scale was given to five other bilingual experts.

**Step 3: Back Translation**

To ensure the accuracy of translated scales, five other experts \((n = 5)\) were requested to translate these scales in English. These experts were Masters of English language and were not included in the translation of scales earlier and were not acquainted with the language and words used in the original English version scales.

**Step 4: Committee Approach**

A group of experts consisting six bilingual experts \((n = 6)\), was asked to critically examine back-translated items and to select the final items. The committee consisted of supervisor of the study, lecturers in Urdu \((n = 2)\), lecturers in English \((n = 2)\) and the researcher herself. All the members of the committee confirmed that translated items either conveyed the similar meaning or meaning closest to the original item.
Phase-II: Determination of Psychometric Characteristics of Urdu Scales

The test-retest reliability, alpha reliability and item-total correlations were measured by using Statistical Package for Social Sciences (SPSS).

Instruments

The following instruments were used to determine the cross language validation and psychometric characteristics.

Perception of Parental Autonomy Support. English version and translated Urdu Version of Perception of Parent Scale (POPS; Robbins 1994) used to evaluate adolescents’ perceptions about their fathers and mothers’ provision of support for autonomy. Two sub-scales (Autonomy Support) consisted of 18 items for mother and father were used in the present study. POPS is 5-point Likert scale, responses range from 1 = not at all true to 5 = very true. Item no. 2, 6 and 9 are reversed score.

Sample

For the determination of psychometric characteristics, the scale was administered to a sample of (N=120) adolescents with age range 14 to 18 years (M = 16.3). The Sample from two schools (F.G. Public High School; Sir Syed College) of Wah Cantt (Pakistan), were selected from 10th, 11th and 12th grade. Convenient sampling technique was used for the present study.

For cross language validation another sample (n = 100) was selected and divided in two equal parts (group 1 and group 2). The original English version scales were administered to Group 1, while the translated Urdu version scales were completed by group 2. The scales were re-administered in a different manner to the same
participants after 15 days. Group 1 was further divided into groups 1a
\((n=25)\) and 1b \((n=25)\). In a same way, group 2a \((n=25)\) and 2b \((n=25)\)
were formed. Original English version scales were given to group 1a
and 2a while Urdu versions were distributed to group 1b and 2b.

**Procedure**

For data collection, permission letters on behalf of
Department of Psychology, International Islamic University Islamabad
was given to the authorities of selected schools/colleges. After getting
permission from the authorities of schools/colleges adolescent were
approached in their classrooms and were explained briefly about the
research and their consent was taken for participation in research. They were requested to read the instructions and each item carefully
and respond as honestly as possible. The average time taken to
complete all the questionnaires was 15 minutes. The participants were
assured about the confidentiality of their responses.

**Results**

**Table 1**

*Frequency and Percentages of the Demographic Characteristics of
Adolescents \((N=120)\)*

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>(f)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>Female</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>Grades</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9th-10th</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>11th-12th</td>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>School System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>67</td>
<td>60</td>
</tr>
<tr>
<td>Government</td>
<td>53</td>
<td>40</td>
</tr>
</tbody>
</table>
Table 2
Cross Language and Test-retest Reliability of Perception of Parents Scale (POPS) and its subscales (N = 100)

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>1st Administration</th>
<th>1st Administration</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>25</td>
<td>English</td>
<td>English</td>
<td>.85</td>
</tr>
<tr>
<td>II</td>
<td>25</td>
<td>English</td>
<td>Urdu</td>
<td>.79</td>
</tr>
<tr>
<td>III</td>
<td>25</td>
<td>Urdu</td>
<td>Urdu</td>
<td>.82</td>
</tr>
<tr>
<td>IV</td>
<td>25</td>
<td>Urdu</td>
<td>English</td>
<td>.76</td>
</tr>
</tbody>
</table>

**p < .01

Table 2 shows correlation between Urdu Perception of Parents Scale (POPS) and Perception of Parents Scale (POPS) English versions are significant (p < .01). The correlation value ranges from .85 (English to English) to .76 (Urdu to English).

Table 3
Alpha Reliability Coefficients of Perception of Parents Scale (N = 120)

<table>
<thead>
<tr>
<th>Subscales</th>
<th>No. of Items</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother Autonomy Support</td>
<td>9</td>
<td>.86</td>
</tr>
<tr>
<td>Father Autonomy Support</td>
<td>9</td>
<td>.83</td>
</tr>
<tr>
<td>Total Autonomy Support</td>
<td>18</td>
<td>.83</td>
</tr>
</tbody>
</table>

Table 3 shows alpha coefficients for the subscales and total Perception of Parents Scale (POPS). Results revealed that alpha reliability of the scales ranged from .83 to .86 indicating high internal consistency among all scales.
The results in the above table show that there is significant positive correlation exists between the subscales and total score of the Perception of Parental Autonomy Support Scale. The significant positive correlations indicated that all items measure the same construct.

Table 5

Mean, Standard Deviation, and Correlation Coefficient of Urdu Perception of Parents Scale and Subscales (N = 120)

<table>
<thead>
<tr>
<th>Subscales</th>
<th>M</th>
<th>SD</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>MAS</td>
<td>32.95</td>
<td>6.94</td>
<td>.146</td>
<td>.818**</td>
</tr>
<tr>
<td>II</td>
<td>FAS</td>
<td>33.79</td>
<td>6.36</td>
<td>---</td>
<td>1</td>
</tr>
<tr>
<td>III</td>
<td>TAS</td>
<td>66.74</td>
<td>10.08</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

* p < .05
** p < .01

Note. MAS = Mother Autonomy Support; FAS = Father Autonomy Support; TAS = Total Autonomy Support

Table 5 shows correlation coefficients among perception of mother autonomy support, perception of father autonomy support and perception of parental autonomy support scale. The results
revealed significant positive correlation between Mother Autonomy Support and Father Autonomy Support scale.

Table 6

*Gender difference on MAS, FAS and TAS (N=120)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Boys (n=60) M SD</th>
<th>Girls (n=60) M SD</th>
<th>t(118)</th>
<th>p</th>
<th>Cohen's d</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS</td>
<td>32.20 7.51</td>
<td>33.70 6.30</td>
<td>-1.08</td>
<td>.28</td>
<td>-.21</td>
</tr>
<tr>
<td>FAS</td>
<td>34.64 5.48</td>
<td>32.94 7.09</td>
<td>1.34</td>
<td>.18</td>
<td>.27</td>
</tr>
<tr>
<td>TAS</td>
<td>66.84 10.54</td>
<td>66.64 9.69</td>
<td>.09</td>
<td>.92</td>
<td>.18</td>
</tr>
</tbody>
</table>

Note. MAS = Mother Autonomy Support; FAS = Father Autonomy Support; TAS = Total Autonomy Support

Results showed in Table 6 indicated non-significant gender differences on the scores of perception of mother autonomy support, perception of father autonomy support and perception of parental autonomy support scale.

**Discussion**

There are very few researches available in the field of developmental psychology in Pakistan especially with reference to autonomy support. Thus, there was a great need of accessibility of appropriate measurement in Urdu language to evaluate perceived autonomy support of adolescents. Present study was conducted to translate the Perceptions of Parental Autonomy Support scale into Urdu language and to establish its psychometric properties.

Phase I was carried out for the translation of scales. To overcome language barriers, the Perceptions of Parental Autonomy-Support was translated into Urdu by the following four steps: 1) translation, 2) committee approach, 3) back translation, and 4) committee approach.
Adolescents with knowledge of both (English and Urdu) languages participated in the study. The results of this phase revealed that scales are reliable and valid. The results indicated that Urdu version of POPS is appropriate for the measurement of perception of parental autonomy support of adolescents in Pakistan.

The phase II of the study was conducted for the determination of psychometric characteristics and cross language validation of the scales. Determining psychometric properties of the scales is considered an essential basic step, which allows the evaluation about the quality and appropriateness of the scales. The results revealed that all the scales in general obtained positive response from participants. Moreover, it showed that there was no difficulty in comprehending the items. The results of the reliability analysis and item total correlation indicated that all the scales were internally consistent. The significant item total correlations indicated that scales were valid and measured what they intended to measure (Anastasi, 1997).

The results of the study revealed non-significant gender differences on the scores of mother autonomy scale, father autonomy scale and total scores of perception of parental autonomy support scale, which could be ascribed to the differences in home/family environment and parental warmth, difference in the role of authority figure and dependence on parents. On the whole, the results revealed that the translated Urdu Version of the scales has good reliability and construct validity and could be recommended for the measurement of Parental autonomy support.

The results of the present research provide evidence for the confident use of translated scales in educational setting and for the future research in the area of developmental psychology. Perception of Parental autonomy support scale could be used to evaluate the multifaceted construct of parental autonomy support in relation to mother and father autonomy support as suggested by Grolnick, Deci
and Ryan (1997). The results of the present study provided a good base for further development of perception of parental autonomy support scale. Future studies while keeping the cultural background in mind might try to develop and improve several items to increase internal consistency of the parental autonomy support, particularly the mother and father autonomy support subscale.

**Limitations and Suggestions**

The use of moderately homogeneous and well-educated sample was the major limitation of the current study. The data was collected from the surrounding areas of Islamabad, Wah Cantt and Attock which have high literacy rate. The use of well-educated sample limits the possibilities to generalize the findings to the population and in particular to samples that are more heterogeneous in terms of living area (rural versus urban). Future studies need to focus on nationwide data, so that generalizability of the findings may be improved.

The scales used in present study should be validated on more broader and large sample.

As the study was co-relational research, it could not offer causational explanations for the obtained results. The data from one point in time limits the knowledge that can be obtained from investigating parenting practices for autonomy granting and controlling through longitudinal research design.
References


EFFECT OF DEBT FINANCING ON CORPORATE FINANCIAL PERFORMANCE: EVIDENCE FROM TEXTILE FIRMS IN PAKISTAN

Sana Tauseef¹, Heman Das Lohano² and Sara Ashfaq Khan³

Abstract

This study examines the effect of debt financing on firm's financial performance, measured as return on equity, using panel data of 95 textile companies in Pakistan from 2002-03 to 2007-08. Empirical results show a nonlinear relationship between return on equity and debt-to-asset ratio. As the debt-to-asset ratio increases, initially the return on equity increases until an optimal debt level is reached, after that it starts decreasing. The optimal debt-to-asset ratio for Pakistan’s textile firms is estimated as 56 percent. We also find that firm’s sales growth has positive and significant impact on return on equity whereas the firm size has no significant impact on it.

Keywords: Debt Financing, Panel Data, Return on Equity, Textile Firms, and Pakistan.

JEL Classification: G 300

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Introduction

Firm’s assets are typically financed with a combination of debt and equity, referred to as firm’s capital structure. Capital structure decision is one of the most important financial decisions taken by a firm because it has an impact on the firm’s financial performance.

A number of theoretical and empirical studies have been conducted to explore the impact of debt financing on the corporate financial performance. Majumdar & Chhibber (1999) and Mahakud & Misra (2009), studies conducted in India, found that corporate debt has a negative impact on the firm’s financial performance because of high interest burden and agency costs. According to Majumdar (1997), the negative relationship between debt financing and the financial performance is due to the structure of Indian capital markets where lending institutions are mostly government-owned. Financial performance of the leveraged firms may decrease due to conflicts between shareholders and debt holders (Jensen & Meckling, 1976; Myers, 1977) and because highly leveraged firms lose substantial market share to their low leveraged competitors during industry downturns (Opler & Titman, 1994). Cheng (2009) found significant negative relationship between debt financing and the operating performance of listed companies in Taiwan. However, the operating performance of firms with high cash flows is not negatively affected by debt financing. Fama and French (1998) found that debt financing does not have a positive impact on the financial performance because there is no tax benefit of debt due to agency problems after controlling for earning, investment, research and development, and dividend.

Many research studies exist that support a positive relation between the use of debt and firm’s profits. According to Baker (1973), the large amount of leverage implies greater risks and tends to raise industry profit rates. Heinkel (1982) pointed out that if capital suppliers are imperfectly informed or if the insiders have more information about the true value of firm then the debt financing and the firm value would have a positive relationship. A study by Ross (1977) found that the firms’ financial structure signals information to market and higher leverage indicates good future prospects. Graham (1996) stated that due to the tax benefits of debt, the firms with high marginal tax rates are more likely to issue debt than the firms with low tax rates.
The literature on capital structure primarily focuses on the determinants of capital structure. Booth et al. (2001) examined the determinants of capital structure across ten developing countries and concluded that capital structure decisions of firms in developing economies are affected by the same variables which affect the capital structure decisions of firms in developed economies. Singh (2010) analyzed the firm-specific and country-specific determinants of capital structure for firms in four developing countries and concluded that capital structure decisions are affected by firm’s own characteristics as well as the macroeconomic conditions of the country in which the firm operates.

Several studies have been conducted on capital structure in Pakistan including Shah and Hijazi (2004), Shah and Khan (2007), and Ilyas (2008). These studies have also focused on identifying the determinants of capital structure for the non-financial firms in Pakistan. However, these studies have not investigated how the capital structure affects the firm’s financial performance. Since the firm has a choice of using debt or equity for financing its assets, there is a need to explore how the company’s financing mix influences its financial performance.

In this study, we examine the effect of debt financing on textile companies’ financial performance in Pakistan. We do not assume a monotonic relationship between debt financing and financial performance because the relationship may be different for different levels of leverage. We applied a quadratic functional form to estimate the relationship and found a nonlinear relationship between return on equity and debt-to-asset ratio. As the debt-to-asset ratio increases, initially the return on equity increases until an optimal debt level is reached, after that it starts decreasing.

We have chosen the textile industry because it is the most important manufacturing industry in Pakistan. Textile industry accounts for 8 percent of Gross Domestic Product (GDP) and 60 percent of exports of Pakistan. Furthermore, it provides employment to 40 percent of industrial labor force (Government of Pakistan, 2013). The objective of this study is two-fold: to explore the relationship between the corporate debt and financial performance of textile firms, and to find the optimal capital structure for these firms.
The rest of the paper is organized as follows. The next section describes the data and discusses the structure of textile firms in Pakistan, followed by a section on the model and estimation methods. Next, we present the empirical results. The final section draws conclusions.

**Data and Structure of Textile Firms**

This study uses the firm-level panel data for the listed companies from the textile industry of Pakistan for six years from 2002-03 to 2007-08, taken from State Bank of Pakistan (2009). The time period covered in this study represents the normal period and, therefore, does not account for the external shocks due to post 2008 global financial crisis impacts. In the year 2008, there were 182 textile companies listed on Karachi Stock Exchange. We did not include 72 firms with incomplete data and 15 firms with negative shareholders’ equity for the covered period. Our final sample consists of six-year data for 95 textile firms of Pakistan with a total sample size of 570 observations.

The data show that all firms included in the sample are large-sized firms in terms of firms’ total assets in fiscal year 2007-08 based on the size categories defined by SME bank in Pakistan (Government of Pakistan, 2008). According to these categories, a firm is defined as small if the total assets are at most Rs. 20 million, as medium if the total assets are between Rs. 20 million to Rs. 100 million, and as large firms if total assets are more than Rs. 100 million.

The data show that total debt of these firms include current debt, term finance certificates (debentures), loans from banks and non-bank financial institutions, and preferred equity. Over the study period, the long-term debt, on average, contributes to 26.5% to the total debt of the sample firms. The reason for lower proportion of long-term debt can be attributed to the under-developed public debt market in Pakistan. This is consistent with the findings of studies including Booth (2001) and Singh (2010) which observed that the firms operating in developing countries have substantially lower amounts of long-term debt.
Model and Estimation Methods

We use return on equity (ROE) as a measure of firm’s financial performance. ROE is computed as net income (after-tax income) divided by total equity of the company and measures the percentage return that the stockholders earn on their investment. Debt-to-asset ratio (DA) is used as a measure of debt policy. DA is computed as total debt divided by total assets and measures the fraction of total asset base which is financed using debt. In addition to DA, other factors including firm size and sales growth also influence ROE of a company (Abor, 2007). To control for the effects of these factors, we include these two variables, firm size (FS) and sales growth (SG). FS is measured as log of total assets, and SG is calculated as a percentage change in sales.

The empirical model of this study is specified as follows:

\[ ROE_{it} = \beta_0 + \beta_1 DA_{it} + \beta_2 DA^2_{it} + \beta_3 FS_{it} + \beta_4 SG_{it} + \mu_i + \lambda_t + \epsilon_{it} \] (1)

where

- \( ROE_{it} \) = Annual net income divided by year-end shareholders’ equity for firm \( i \) in time \( t \)
- \( DA_{it} \) = Year-end total debt divided by year-end total assets for firm \( i \) in time \( t \)
- \( FS_{it} \) = Firm size (log of year-end total assets) for firm \( i \) in time \( t \)
- \( SG_{it} \) = Annual sales growth for firm \( i \) in time \( t \)
- \( \mu_i \) = unobservable firm specific effect
- \( \lambda_t \) = unobservable time effect
- \( \epsilon_{it} \) = stochastic disturbance term

The squared term of debt-to-asset ratio, \( DA^2 \), is added to investigate whether the relationship between ROE and DA is monotonic for all levels of debt-to-asset ratio or this relationship varies for different debt-to-asset ratio levels. Similarly, we also explored the quadratic relationship by adding the squared term for FS and SG, however, they were not significant.
The panel data model specified above is a two-way error component regression model with firm specific effects and time specific effects. The firm specific effects account for the other variables that are time-invariant but vary from firm to firm (such as management quality). The time specific effects account for the other variables that vary from time to time (such as tax structure and inflation) but are common to all firms. Estimation of the model with firm specific effects and time specific effects corrects for the possible omitted variable bias. These effects, firm specific or time specific, may be fixed or random. In the case of fixed effects, the error components ($\mu_i$ or $\lambda_t$) are assumed as fixed parameters. In the case of random effects, the error components ($\mu_i$ or $\lambda_t$) are assumed to be random variables. As the data are available only for very short time period (six years), which do not represent a random sample across time, the fixed effects are used for time period as suggested in Baltagi (2008). For cross-section, the number of observations is 95. Assuming that the sample is representative, the unobservable cross-section effects may be fixed or random. We use the Hausman’s specification test to check whether the cross-section effects are fixed or random (Baltagi, 2008).

**Empirical Results**

The descriptive statistics on return on equity (ROE), debt-to-asset ratio (DA), firm size (FS) measured by total assets and annual sales growth (SG) of sample textile firms are presented in Table 1. The average ROE for the sample firms over the six year period is 3.6%. Statistics on ROE show that there is a lot of change in the average ROE over the six year period. It dropped from 8.8% in the fiscal year 2002-03 to 6.5% in the fiscal year 2007-08. The average DA for the sample firms is highest (68.7%) in 2007-08 and lowest (59.9%) in the year 2002-03. Over the six year period, 64% of the total assets of the sample firms, on average, are financed by total debt. The average total assets for the sample companies are Rs. 1.74 billion in 2002-03 and Rs. 3.92 billion in 2007-08, which shows a rapid growth of 17.6% per year in the asset base of the sample companies during the period of study. The average SG for the sample firms over the six year period is 15%. Although the size of the firm, on average, has increased in all six years, ROE has declined for three years from 2005-06 to 2007-08. The decline in ROE was mainly due to the decline in exports owing to
global financial crisis and domestic energy shortages (Government of Pakistan, 2009).

Panel data regression analysis was carried out to examine the relationship between the textile firms’ debt financing and financial performance. The model was estimated using E views version 6. As the data are available only for a very short time period (six years), which do not represent a random sample across time, the fixed effects are used for time period (Baltagi, 2008). For cross-section, the number of observations is 95. Assuming that the sample is representative, the unobservable cross-section effects may be fixed or random. Table 2 compares coefficient estimates with cross-section fixed effects and random effects. The table reports the p-values of t-test for testing the significance of the differences between the coefficient estimates with cross-section fixed effects and random effects. To check whether the cross-section effects are fixed or random, we use Hausman’s specification test. Table 3 presents the results of Hausman’s specification test. As the p-value of the chi-square statistic is less than 0.05, the test rejects the null hypothesis of random effects for cross-section. Therefore, the test supports the fixed effects for cross-section.

Results on panel data model with fixed effects for both the cross-section and time period are presented in Table 4. The results show that $R^2$ of the regression is 0.38, which indicates that all independent variables together explain 38% of the variation in the dependent variable. Note that the model is overall significant as the p-value of F-statistic is much less than 0.05.

The results in Table 4 show that the estimated coefficient estimates are 1.92 on $DA$ and 61.71 on $DA^2$. These coefficient estimates are statistically significant since the p-value for each coefficient is less than 0.05. The results show a quadratic relationship between the predicted $ROE$ and $DA$, illustrated in Figure 1. When the $ROE$ is maximized with respect to $DA$, the optimal $DA$ ratio is $DA^* = -\frac{\beta_1}{2\beta_2}$, where $\beta_1$ is the coefficient on $DA$ and $\beta_2$ is the coefficient on $DA^2$. Based on the coefficient estimates, the optimal $DA$ is estimated as 56 percent. These results show that as the debt-to-asset ratio increases, initially the return on equity increases...
until an optimal debt level is reached, where the return on equity is maximum. Beyond the optimal debt level, the return on equity starts decreasing. These findings are consistent with the trade-off theory of capital structure which suggests that a firm’s optimal capital structure is found by trading off the tax benefits of debt against the bankruptcy and financial distress costs (Baxter, 1967; Leland, 1994; Leland & Toft, 1996).

The coefficient estimate on firm size (FS) is not significant. This means that firm size has no impact on the firm’s financial performance. The coefficient on sales growth (SG) is statistically significant with a p-value less than 0.05. The results indicate that the sales growth has a positive impact on the financial performance of textile firms.

Table 1:

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<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average return on equity (ROE)</td>
<td>0.088</td>
<td>0.066</td>
<td>0.072</td>
<td>0.046</td>
<td>-0.004</td>
<td>-0.053</td>
<td>0.036</td>
</tr>
<tr>
<td>Average debt-to-asset ratio (DA)</td>
<td>(0.339)</td>
<td>(0.376)</td>
<td>(0.104)</td>
<td>(0.092)</td>
<td>(0.185)</td>
<td>(0.209)</td>
<td></td>
</tr>
<tr>
<td>Average firm size (total assets in billions Rs.)</td>
<td>1.734</td>
<td>2.182</td>
<td>2.765</td>
<td>3.092</td>
<td>3.522</td>
<td>3.919</td>
<td>2.869</td>
</tr>
<tr>
<td>Average sales growth rate (SG)</td>
<td>0.234</td>
<td>0.252</td>
<td>-0.167</td>
<td>0.400</td>
<td>0.116</td>
<td>0.065</td>
<td>0.150</td>
</tr>
</tbody>
</table>

Note: Standard deviations are given in parentheses
**Table 2:**  
Comparison of Coefficient Estimates with Cross-Section Random Effects and Fixed Effects

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Fixed Effect ($\beta_{FE}$)</th>
<th>Random Effect ($\beta_{RE}$)</th>
<th>Variance ($\beta_{RE} - \beta_{FE}$)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA</td>
<td>1.921</td>
<td>1.241</td>
<td>0.680</td>
<td>0.111</td>
</tr>
<tr>
<td>$DA^2$</td>
<td>-1.711</td>
<td>-1.203</td>
<td>-0.508</td>
<td>0.072</td>
</tr>
<tr>
<td>FS</td>
<td>-0.037</td>
<td>0.049</td>
<td>-0.086</td>
<td>0.389</td>
</tr>
<tr>
<td>SG</td>
<td>0.071</td>
<td>0.086</td>
<td>-0.015</td>
<td>0.100</td>
</tr>
</tbody>
</table>

**Table 3:**  
Hausman’s Specification Test for Cross-Section Random Effects versus Fixed Effects

<table>
<thead>
<tr>
<th></th>
<th>Chi-Square Statistic</th>
<th>Degree of Freedom</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-Section Random</td>
<td>10.395</td>
<td>4</td>
<td>0.0343</td>
</tr>
</tbody>
</table>

**Table 4:**  
Regression Results with Cross-Section Fixed Effects and Time Fixed Effects (Dependent Variable ROE)

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Coefficient Estimate</th>
<th>Standard Error</th>
<th>t-Statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.344</td>
<td>0.342</td>
<td>-1.007</td>
<td>0.315</td>
</tr>
<tr>
<td>DA</td>
<td>1.921</td>
<td>0.495</td>
<td>3.880</td>
<td>0.000</td>
</tr>
<tr>
<td>$DA^2$</td>
<td>-1.711</td>
<td>0.413</td>
<td>-4.138</td>
<td>0.000</td>
</tr>
<tr>
<td>FS</td>
<td>-0.037</td>
<td>0.103</td>
<td>-0.355</td>
<td>0.723</td>
</tr>
<tr>
<td>SG</td>
<td>0.071</td>
<td>0.030</td>
<td>2.368</td>
<td>0.018</td>
</tr>
</tbody>
</table>

R² = 0.376; F-statistic = 2.723 (p-value = 0.0000)

**Figure 1:**  
Effect of Debt-to-Asset Ratio on Predicted Return on Equity
Conclusion

This study examines the impact of debt financing on the financial performance, as measured by return on equity, of textile firms in Pakistan using the panel data of 95 textile firms for a six-year period from 2002-03 to 2007-08. Empirical results show a nonlinear relationship between return on equity and debt-to-asset ratio. As the debt-to-asset ratio increases, initially the return on equity increases until an optimal debt level is reached, after which it starts decreasing. The optimal debt-to-asset ratio for Pakistan’s textile firms is estimated as 56 percent. These results imply that the textile firms which are heavily trapped in debt have to bear huge interest costs which take a big portion out of the operating incomes of these firms, leaving little portion in the net income which belongs to the owners. We also find that firm’s sales growth has positive and significant effect whereas the firm size has no significant impact on its return on equity.

Further research can be done to explore the effect of financial leverage on the performance of textile firms as measured through the stock returns of the firms. Macro-economic variables can be incorporated to see their effects on financial leverage of firms. Similar studies can also be done for other industrial sectors of Pakistan.
References


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