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

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Mission Statement

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

Aims & Objectives

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

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The research focused on but not limited to following core thematic areas;

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- Finance
- General Management
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- Knowledge Management
- Leadership
- Marketing
- Operation Management
- Organization Behavior
- Organization Development
- Supply Chain Management
- Sustainability
- Human Resource Management
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Director's Message

Sukkur Institute of Business Administration has been imparting education with its core values merit, quality, and excellence since foundation. Sukkur IBA has achieved numerous milestones in a very short span of time that hardly any other institute has achieved in the history of Pakistan. The institute was ranked as third best business school in Pakistan by HEC ranking 2013. The distinct service of Sukkur IBA is to serve the rural areas of Sindh and also underprivileged areas of other provinces of Pakistan. Sukkur IBA is committed to serve targeted youth of Pakistan who are suffering from poverty and deprived of equal opportunity to seek quality education. Sukkur IBA is successfully undertaking its mission and objectives that lead Pakistan towards socio-economic prosperity.

In continuation of endeavors to touch new hallmarks in the field of business education and research, Sukkur IBA recently hosted 4th International Conference on Business and Management (ICOBM-2014). The event attracted delegates from 7 countries and keynote speakers from USA, Finland, and U.K. Sukkur IBA believes research is an integrated part of modern learning and development. Consequently, SIJMB is the modest effort to contribute and promote the research environment within the institution and Pakistan as whole. SIJMB is peer reviewed and multidisciplinary research journal to publish the findings and results of the latest and innovative research in the fields, but not limited to business, economics and management. Following the tradition of Sukkur IBA, SIJMB is also aimed to achieve international repute and high impact research publication in the near future.

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

Prof. Nisar Ahmed Siddiqui
Sitar-e-Imtiaz
Director Sukkur IBA

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Editorial

Dear Readers,

Since the advent of globalization, the business and economic growth has replaced the conventional power tools i.e. military strength, weapons, no. of soldiers etc. Today the countries of world are recognized and considered powerful in term of their economic strength and global business accumulation. That is why global surge towards the attainment of business and economic goals is associated with the quality of management and economic policy design. The last few decades have seen proliferating growth in business and management education. The candidates produced in these systems are now running the business empires which rule the world. In precise, business education and management research has been playing vital role in innovating businesses and management practices. It further expands the businesses with minimized risk and results in larger success ratio.

Nevertheless, Pakistan has also been striving for imparting the quality of business education and research since inception. Numerous business schools are working on producing business graduates to meet the growing demand in the developing economy. The institutes are engaged in understanding the domestic business requirements with its compatibility to global markets and vice versa. Therefore, Sukkur IBA is also aimed to establish to meet such requirements with international standards. The institute has distinguished itself among the best schools of the country in very short span of time. Now it ranks 3rd best business school in Pakistan. Realizing the responsibility and long term vision, Sukkur IBA is now focusing the business and management research. After holding a very successful international conference (ICOBM-2014), we proudly issue a first special issue of our newly established Sukkur-IBA Journal of Business and Management (SIJBM). The special issue is composed of selected papers from the conference proceedings. The frequency of the journal is initially set to semi-annual.
The journal is a sincere effort of Sukkur-IBA's unmatched contributions towards business education and research. SIJBM is aimed to produce high quality original research articles, case studies, review articles and short essays on any of the journal's thematic areas. The Journal will be indexed in highly ranked services and aim to get recognized by international level.
I look forward to receive your submissions and feedback.

Sincerely,
Dr. Khalid Ahmed
Editor-in-Chief
SIJBM

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A study of causality between disintegrated intellectual capital and firm performance

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Abstract:

This paper aims to provide the new and unique way to analyze the factors which causes Intellectual Capital (IC) and its impacts on firm's performance. The data is obtained from 41 Chinese companies listen in Shanghai Stock Exchange Company from 2005 to 2011The empirical technique adopted to investigate this research is also unprecedented. This study uses Vector Auto-Regression (VAR) model on panel data structure to analyze the relationship between disaggregate intellectual resources and its impacts on the profitability at the firm level. The diverse estimation technique is used which covers both cross-sectional and time behavior of data. The variety of empirically tools; unit root, co-integration and granger causality tests are applied respectively to validate the hypothesis. The overall results confirm the hypothesis whereas, in the light of the results of the descriptive statistics, the low value of SCE shows that the Chinese high-tech companies are not investing enough as compared to the other components of intellectual capital as compare to HCE and CEE. The results from the short run causality test based on VECM signify bidirectional causality between ROE and HCE and unidirectional causality from HCE to SCE and CEE to SCE. The results of the data analysis provide useful implications for the theory of intellectual capital. The results indicate that the presence of intellectual capital causes a firm to attain better performance.

Keywords: Firm Performance, Intellectual Capital, Vector Autoregression

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1. Introduction

With the advent of 'knowledge economy' and the recognition of Intellectual Capital (IC) as the strategic factor for the value creation of the firm, the research in this specific area has been increased manifolds. However, the theory of IC is still developing and authors agree on further research to refine the theory of intellectual capital. Empirical studies are required to support the proposed theories so that the theories can be generalized.

The importance of intellectual capital has been recognized by many authors and it has been regarded as the strategic factor responsible for creating value for the organization (Sveiby, 1997, Stewart and Ruckdeschel, 1998, Martin-de-Castro et al., 2010, Kaufmann and Schneider, 2004). Although there can be issues in the measurement and financial evaluation of intellectual capital, but its strategic importance for the firm cannot be ignored (Bontis, 1998). In recent years, there has been enormous increase in the investments in intangibles by the firms (Edvinsson, 2000). Thus, the strategic importance of IC coupled with the increased investment calls for more research in the area. Consequently, IC has been one of the highly focused research topic in the recent business literature and a huge volume of literature has been produced as well, (Alcaniz et al., 2011). (Tan et al., 2008) argues that the research on the topic has undergone subsequent developmental stages of definitions, measurement models, empirical studies and strategic importance of IC. Their study covers in detail the evolution of the research in the area of IC. The introduction of specialized journals such as *The Journal of Intellectual Capital* and special issues in other journals have further enhanced the research on IC (Alcaniz et al., 2011).

Various researchers have empirically studied the relationship of intellectual capital with other variables but the most of the studies have focused on the relationship between intellectual capital and performance of the firm and intellectual capital and the market value of the firm. These studies have produced different and somehow contradictory results. However, these studies are limited to one way relationship from intellectual capital to performance or market value of the firm and the quantitative technique commonly used were regression models. There have been very few studies that focused on the causal relationships in order to know what causes intellectual capital in the firm and the relationship among the various components of intellectual capital is rarely studied in the literature. If intellectual capital is a strategic resource of the firm, as recognized by majority of the researchers, then it is important to study the causes of intellectual capital beside its consequences. In this way, we can improve our understanding of Intellectual Capital by studying its causal relationship. It helps to identify that how Intellectual capital is generated and how the firm can improve its intellectual capital. The notion of conducting empirical research to analyze the relationship among the various components of intellectual capital is in growing need. The key reason to do so is the components of IC work in collaboration to create value but not in isolation. Understanding the relationship among the components of intellectual capital can help firm to use them in a smoother way to create superior value. This study focuses on the causal relationship of disintegrated intellectual capital with the performance of the firm and the causal relationship among the components of intellectual capital.

In order to study the causal relationship between disintegrated intellectual capital and performance of the firm and the relationship among the components of IC, the Granger causality test is applied.

Value Added Intellectual Coefficient (VAIC) model, developed by Ante Pulic, is used to measure the intellectual capital of the firm while performance of the firm is measured through the traditional measure of Return on Equity (ROE). Data is collected from 41 companies listed on Shanghai Stock Exchange. All the companies belong to High-Tech industry, which is a non-traditional industry and the role of intellectual capital is expected to be high in the performance. The rest of the paper is structured as follows. The next section provides a brief literature review of the empirical studies that have been conducted and their findings. After that, methodology and data for this study is explained. The second last section shows the analysis of the data and finally the last section provides the conclusion of research and some recommendations for the future research.

2. Literature Review

Research in the area of intellectual capital emerged in the early 1990's with mostly practitioners and consultancy firms taking the initiative (Martin-de-Castro et al., 2010). The main reason behind this start was the huge discrepancies found by researchers between the book value and market value of the firm (Martin-de-Castro et al., 2010). Perhaps that is why that most of the seminal researchers (Sveiby, 1997, Stewart and Ruckdeschel, 1998, Roos and Roos, 1997, Edvinsson, 2000, Bontis, 1998) defined intellectual capital as the difference between the book value and the market value of the firm. (Dumay, 2012) has criticized this view arguing that the difference can be the cause of many other market factors and not just intellectual capital of the firm. However, as the theory developed, new definitions emerged. Although there is no generalized standard definition of IC (Martin-de-Castro et al., 2010, Kaufmann and Schneider, 2004, Choong, 2008), the characteristics of intangibility and value creation can be derived from all the definitions. Thus most of the authors are of the view that intellectual capital is something in the firm that has no physical attributes but create value for the organization ((see Kaufmann and Schneider, 2004, Choong, 2008)). However, (Caddy, 2000) differentiates intellectual capital from intangible assets.

Measurement and recognition of intellectual capital of a firm has been highly discussed topic in the literature on IC. Traditional accounting and financial measurement and reporting systems failed to capture the value of intellectual capital of a firm (Vafaei et al., 2011, Rodov and Leliaert, 2002, Molodchik et al., 2012, Martin-de-Castro et al., 2010, Kaufmann and Schneider, 2004, Kannan and Aulbur, 2004, Guthrie, 2001). The current traditional accounting systems are based on the double entry system of recording transactions which does not suit accounting for intellectual capital (Gowthorpe, 2009). Although (Caddy, 2000) introduced the concept of intellectual liabilities and argued that they should be taken into consideration, however it is very difficult to recognize and report intellectual liabilities. Although majority of the researchers agree that there is a need to develop reporting systems for intellectual capital, some authors such as (O'Donnel et al., 2000), (Gowthorpe, 2009) and (Dumay, 2012) are of the opinion that the nature of intellectual capital is such that it cannot be fully brought into the accounting spheres.

Measuring intellectual capital gives various benefits to the firm and having the specific knowledge of intellectual capital would enable the management to devise a better strategy regarding the allocation of resources in order to get competitive advantage (Kannan and Aulbur, 2004, Guthrie, 2001). However, due to the abstract nature of IC, measurement of IC is not easy. Even though, researchers

have made attempts to measure intellectual capital of the firm and there are various measurement models available in literature. (Kannan and Aulbur, 2004) provides a good coverage of the measurement models. They divide the models into four categories including 'Perceptual models', 'Process models', 'Financial models', and 'Other measurement models'. However, they also point out various shortcomings in the current models and propose to develop an integrated measurement system that would consider all the above school of thoughts. (Tan et al., 2008) also provide a useful review of intellectual capital measurement models. They classify the models into Non-dollar valuation of IC and Dollar valuation of IC. However, the measurement models for IC are still in their infancy and more objective and applicable models are evolving (Tan et al., 2008). (Bontis, 2001) assesses some measurement models of IC in detail and concludes that there has been a great development in this regard. However, as the field is still in embryonic stage, there is a need for more comprehensive and collaborative models to be developed (Bontis, 2001). However, one greater challenge for the IC research is the lack of empirical studies. Most of the researchers just document the existing measurement models but there are very less studies that attempt to study the validity of these models (Bontis, 2001).

The lack of clear measurement models makes it very difficult to empirically study the role of intellectual capital. However, it should be acknowledged that the nature of intellectual capital is such that it makes it almost impossible to completely objectify it, especially in dollar terms (O'Donnel et al., 2000). Therefore, instead of opening the Pandora Box of developing new accounting systems and measurement models to measure intellectual capital to its exact dollar value (Dumay, 2012), empirical studies should be carried out in order to test the existing models and to point out their shortcomings and improve them. Allocating resources and efforts to develop measurement systems would not do any good to the theory of intellectual capital (O'Donnel et al., 2000).

Nevertheless, the current models for capturing the value of IC are failed in achieving their objectives and are inadequate for the measurement of IC (Molodchik et al., 2012, Kaufmann and Schneider, 2004, Kannan and Aulbur, 2004). These frameworks are often too qualitative in nature, as they make the use of proxy indicators for measuring IC, and do not say anything about the importance of each component or indicator to the performance of the firm (Kaufmann and Schneider, 2004). Another issue with these models is their lack of comparability (Kaufmann and Schneider, 2004). Each model has its own structure and uses firm specific proxies and indicators of IC making it difficult to compare the results obtained from two different models. However, the use proxies and indicators for measuring IC are inevitable due the nature of intellectual capital. Therefore, there is a need select one model with better proxies and indicators of the value of intellectual capital and use it in empirical studies with data from different firms and different economic environments in order to test its validity.

Various researchers have conducted empirical studies to study the importance of intellectual capital for the firm using different measurement models. These studies have produced different results, sometimes contradictory (Clarke et al., 2011). (Clarke et al., 2011) provides a good literature review of the empirical studies and their results. However, in this paper, there is no study that attempts to understand the causal relationship among intellectual capital, its components and firm performance or market value. All the studies investigate the impacts of intellectual capital on performance

indicators. One study that is conducted for studying the cause and effect relationship is by (Wang and Chang, 2005). Their study uses the Partial Least Square (PLS) method to study the cause-effect relationship among components of intellectual capital (human capital, customer capital, innovation capital, and structural capital) and the impacts of each on the performance of the firm. However, this study investigates only the unidirectional causality from the components of intellectual capital to performance and from human capital to other components of intellectual capital. Their results indicate that the three components of intellectual capital, other than human capital, directly affect performance of the firm while human capital indirectly influence performance by affecting the other three components. They also found the cause-effect relationship among the components of intellectual capital where human capital influenced innovation and process capital, innovation capital influenced process capital and process capital influenced customer capital.

Some other relevant empirical studies such as; (Firer and Williams, 2003) studied data from 75 publically traded companies from South Africa, using the Value Added Intellectual Coefficient (VAIC) model as a measure of intellectual capital, in order to find the relationship of intellectual capital and the three traditional measures of corporate performance i.e. profitability, productivity, and market value. Their findings indicated mixed results failing to prove any significant impact of any component of VAIC, except for the physical capital, on the corporate performance of the firms under study.

(Bollen et al., 2005) conducted a questionnaire based study in order to find out the relationship of IC and its components; HC, SC, RC, and IP, with the performance of companies in the German pharmaceutical industry. The results showed that there is a positive relationship between the company performance and IC of the firm. They also found that a correlation exist among the components of IC i.e. HC, SC, and RC and IP. IP serves as an interface linking the other components of IC to the company performance.

(Chen et al., 2005) studied the data from Taiwanese listed companies in order to find the impact of IC on the market value and firm performance. Their final sample included 4254 firms. They used Public's Value Added Intellectual Coefficient (VAIC) model to measure intellectual capital, Market-to-book ratio to measure market value, and ROA, ROE, growth in revenue (GR) and employee productivity (EP) to measure performance of the firm. Results of the multiple regression models indicate that market value of the firm is positively associated with VAIC and its two components HCE and CEE. VAIC was found to have significant and positive relationship with all the four indicators of performance. Same results were found for HCE and CEE while SCE was found to have positive relationship with only ROE. While regressing lagged independent variables, the authors found that only VAIC and CEE has positive relationship with all the four indicators of performance. Based on their results, they concluded that investors give an increasing weight to intellectual capital efficiency and that firms with higher intellectual capital perform better in terms of profitability and revenue growth. They also concluded that the intellectual capital developed in previous years has a positive impact on the proceeding year performance of the firm.

(Muhammad and Ismail, 2009) conducted an empirical study on investigating the efficiency of intellectual capital and impacts on the performance of firms in Malaysian financial sector. Using

Pulic's Value Added Intellectual Coefficient (VAIC) model, they studied data collected from 18 firms in the financial sector including banks, insurance companies and brokerage firms. Their results indicate that there is a positive and significant relationship between intellectual capital and firm performance (measured by profitability and ROA). During examining the impacts of component of intellectual capital, using multiple regression models, they found that human capital and structural capital have insignificant and negative relationship with the performance while capital employed showed significant and positive relationship with profitability and ROA.

(Orens et al., 2009) conducted a content analysis of corporate websites of the companies belonging to Belgium, France, Germany, and the Netherlands in order to find whether the presence of IC information on these websites affect the market value of the firm. They found that companies tend to provide more information relating to customers as compared to other components of IC. The results of analysis indicated a strong positive relationship between firm value and IC disclosures.

Murali(V and Ashrafali, 2010) studied data from 13 firms of the IT industry of India using VAIC as the measure for intellectual capital and found a positive relationship between corporate financial performance of the firm and VAIC and all its three components.

(Clarke et al., 2011), following the methodology of (Chen et al., 2005), examined the effects of intellectual capital on the performance of Australian companies. They used the data from listed Australian companies for the years between 2004 and 2008. Their sample consisted of 1676 firms. Measuring intellectual capital with Public's VAIC model, they used multiple regression models to examine the relationship between intellectual capital and performance, which they measured through ROA, ROE, Revenue Growth, and Employee Productivity. Results indicated the existence of a relationship between overall IC and performance of the firm. Examining the individual impacts of components of IC, results showed that HC and CE have significant and positive relationship with performance whereas SC is not found to have significant relationship with any performance measure. While examining the effects of previous year's IC on the current year's performance, they found positive relationship with all performance measures except revenue growth. HC and SC of previous years were found to have significant relationships with performance indicators of the current year.

(Maditinos et al., 2011) studied data from 96 Greek companies listed on Athens stock exchange using VAIC model as the measure of intellectual capital. Their results were failed to support the hypothesis that intellectual capital enhances market value of the firm. They found significant relationship between only HCE and market-to-book ratio. Results were failed to explain any significant relationship between VAIC and its three components and the measures of performance (ROA, ROE and GR) except for HCE that was found to have significant relationship with ROE.

(Lu, 2012) studied public universities in Taiwan in order to find whether intellectual capital influence the operating efficiency of these universities and concluded that intellectual capital plays a very important role in the performance, especially in teaching and research areas of public universities in Taiwan.

(Molodchik et al., 2012) studied a number of companies for European countries including Germany, Finland, Denmark, Spain and others, using their Intellectual Capital Transformation Evaluation

Model (ICTEM). They concluded that IC has a positive effect on the performance of the company. The analysis showed that HC is relevant only in long term while SC, to their surprise, is not important in the value creating process for the companies. Some of the SC indicators were found to be negative drivers of performance in short-term while positive drivers in long-term. Relational capital produced similar results as structural capital where the effect is different for different indicators.

(Mehralian et al., 2012) studied pharmaceutical companies in Iran to study what relationship exists between intellectual capital and performance of the firm indicated through profitability, productivity and market valuation. Measuring intellectual capital through VAIC, profitability through ROA, productivity through ATO, and market valuation through M/B ratio, they found that VAIC has a positive relationship with ROA and ATO but significant negative relationship with M/B ratio. Same results were found for SCE while CEE was found to have negative relationship with ATO as well. HCE was found to have no significant relationship with any of the dependant variable.

(Komnenic and Pokrajcic, 2012) used data from 37 MNCs conducting business in Serbia using VAIC method to investigate the relationship between intellectual capital and corporate performance (measured by ROA, ROE, and productivity). They found human capital to be positively associated with all the three measures of performance, structural capital only with ROE, while capital employed strongly associated with all the three measures.

1. Theoretical framework and hypotheses

The theoretical framework for this study is presented in the following figures:

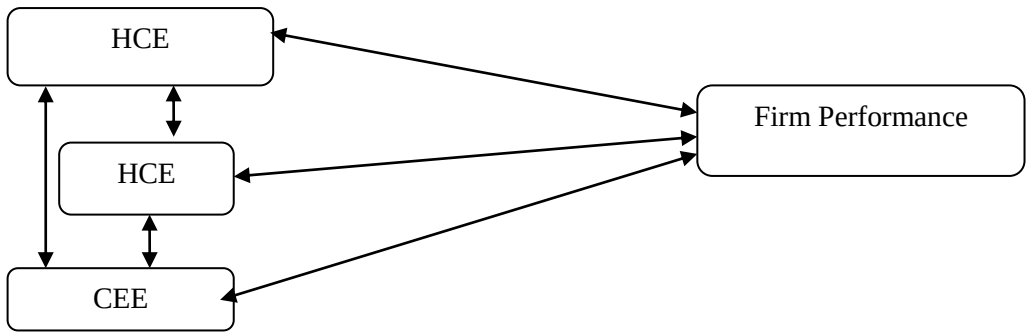

Figure 1: Relationship among components of intellectual capital and firm performance

Figure 1, shows the inter-relationship among the components of intellectual capital i.e. HCE, SCE and CEE and their relationship with the performance of the firm. It is assumed here in this study that each component of intellectual capital impacts the other components. If a firm has highly educated and skilled employees, it will cause the firm's structural capital to be high. In turn, higher structure capital would help employees in developing their knowledge and skills and would facilitate them in the process of intellectual capital creation. Capital employed is assumed to have the same relationship with the other components. Furthermore, all the components are supposed to have, individually, the same relationship with performance of the firm.

The following hypotheses are tested in this study:

H_1: Presence of intellectual capital (VAIC) causes improved performance in the firm (ROE)
H_2: Improved performance of the firm (i.e. higher value of ROE) cause the value of intellectual capital in the firm to be greater.
H_3: There is a relationship among the components of intellectual capital i.e. different components of intellectual capital causes each other.

3. Methodology

The study employs the VAR Model established with the attention of Panel data structure. The relationship between disaggregate intellectual resources and its impact on the profitability at the firm level is never studied before which employs such a unique and diverse estimation technique. The panel data is the two dimensional approach that leads to analyze particular variables by cross sectional as well as time behaviors. The empirical investigation is based on the three step procedure; firstly, the unit root test for panel data is applied to obtained the order of integration among the variables; second, the long run association of the variables is scrutinized by employing the panel cointegration test suggested by (Pedroni, 1999) and at third, the causality test is applied based on the VECM.

3.1. Panel Unit Root Test

In order to secure the statistical weight and to raise the weight of their opposite variable's univariate, the test of unit root is applied (Breitung and Pesaran, 2008). There are several tests suggested by the authors that are structured according to panel data. In this regards our study employs the two test presented by the Levin, Lin and Chu-LLC (2002) and Im, Pesaran and Shin-IPS (2003). The LLC model structure assumes the constant individual heterogeneity in the panel and can be defined as under:

$$\Delta y_{it} = \delta_i y_{it-1} + \sum_{j=1}^{n_i} \rho_{ij} \Delta y_{it-j} + \alpha_i + e_{it} \quad \ldots\ldots\ldots (1)$$

Where, y_{it} is the particular variable observations for $i= 1 \ldots .N$ firm at time t=1 . . . . T periods, Δ represents the first difference operator and e_{it} is the residual that follows $IDD\ (0,\sigma_e^2)$. The null hypothesis of panel unit root is that all the units of the panel have unit root problem against the alternative hypothesis of stationary in all the units of the panel. Later on, IPS extends the similar model of LLC and allows the individual heterogeneity among the cross sectional units. The null hypothesis of their test follows that the each individual unit of series hold unit root. Moreover, two model structures are developed in order to analyze the unit root, the first at the level form and other at the first difference. And each model has been regressed with and without deterministic trend variable and the maximum lag length has been selected according to the information of AIC.

3.2. Panel Cointegration test

The second phase of our empirical analyses leads us to examine the long run association among the ROE, HCE, SCE and CEE. In this study, we followed the Pedroni (1999, 2000) cointegration test structured for the panel data. The advantage of using this technique over the conventional method of cointegration is that it allows the individual heterogeneity in the panel. The empirical model constructed for the adopted test of cointegration can be presented as follows:

$$ROE_{it} = \alpha_i + \delta_t + \gamma HCE_{it} + \beta SCE_{it} + \emptyset CEE_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots (2)$$

Where, ROE, HCE, SCE and CEE are the firms' Return on Equity, Human capital efficiency, structural capital efficiency and capital employed efficiency, respectively. The symbols γ, β & $\emptyset$ are the elasticities of returns on equity with respect to HCE, SCE and CEE, respectively. Furthermore, α and δ show the firm individual specific effects and time trend variables, where as ε_{it} represents the estimated residual that varies across time and firms.

The Pedroni (1999, 2000) proposed seven unlike statistics in order to investigate the existence of long run relationship among the variables under the null hypothesis of no cointegration. He suggested three statistics of group-mean namely, rho statistic, Pedroni statistic (PP) and Augmented Dicky Fuller (ADF) statistic. These statistics are also known as the between dimension. On the other hand, the null hypothesis of no cointegration is also encountered by the further four statistic, namely, Panel v-statistic, panel rho-statistic, Panel PP-statistic and Panel ADF-statistic. And these statistics are also known as within dimension statistics. The null hypothesis of no cointegration is rejected if the entire statistics show the high negative statistics except the panel v-stats. The panel v-stats follows the one sided test so if it has high positive value then null hypothesis can be rejected.

3.3. Panel Granger Causality Test based on VECM

As we are more interested to indentify the direction of causality between the firm performance and the disaggregate determinants of intellectual capital resources; however the equation 2 just answered to the question of existence of long run association between variables. In this regards, we have exploited the granger causality test based on VECM. At the first stage, we estimate the equation 2 and obtain the estimated residual as suggested by the Engle and Granger (1987). Then we investigate the direction of causality by incorporating the estimated residuals in the right side of equations and developed the models under the panel data structure as suggested by the Holtz-Eakin et al. (1988). The dynamic vector error correction model under the panel data can be described empirically as follows:

$$\Delta \mathrm{ROE}_{\mathrm{it}} = \alpha_{1\mathrm{j}} + \sum_{k=1}^{p} \gamma_{11ik}\, \Delta ROE_{it-\mathrm{k}} + \sum_{k=1}^{h} \gamma_{12ik}\, \Delta HCE_{it-\mathrm{k}} + \sum_{\mathrm{k}=1}^{z} \gamma_{13ik}\, \Delta SCE_{it-k} + \sum_{\mathrm{k}=1}^{z} \gamma_{14ik}\, \Delta CEE_{it-k} + \lambda_{1\mathrm{i}} ECT_{it-1} + u_{1\mathrm{it}} \quad \ldots\ldots\ldots\ldots (3)$$

$$\Delta \mathrm{HCE}_{\mathrm{it}} = \alpha_{2\mathrm{j}} + \sum_{k=1}^{p} \gamma_{21ik}\, \Delta HCE_{it-\mathrm{k}} + \sum_{k=1}^{h} \gamma_{22ik}\, \Delta \mathrm{ROE}_{\mathrm{it}-\mathrm{k}} + \sum_{\mathrm{k}=1}^{z} \gamma_{23ik}\, \Delta SCE_{it-k} + \sum_{\mathrm{k}=1}^{r} \gamma_{24ik}\, \Delta CEE_{it-k} + \lambda_{2\mathrm{i}} ECT_{it-1} + u_{2\mathrm{it}} \quad \ldots\ldots\ldots\ldots (4)$$

$$\Delta \mathrm{SCE_{it}} = \alpha_{3j} + \sum_{k=1}^{p} \gamma_{31ik}\ \Delta SCE_{it-k} + \sum_{k=1}^{h} \gamma_{32ik}\ \Delta \mathrm{ROE_{it-k}} + \sum_{k=1}^{z} \gamma_{33ik}\ \Delta HCE_{it-k} + \sum_{k=1}^{r} \gamma_{34ik}\ \Delta CEE_{it-k} + \lambda_{3i} ECT_{it-1} + u_{3it} \quad \ldots\ldots\ldots\ldots (5)$$

$$\Delta \mathrm{CEE_{it}} = \alpha_{4j} + \sum_{k=1}^{p} \gamma_{41ik}\ \Delta CEE_{it-k} + \sum_{k=1}^{h} \gamma_{42ik}\ \Delta \mathrm{ROE_{it-k}} + \sum_{k=1}^{z} \gamma_{43ik}\ \Delta HCE_{it-k} + \sum_{k=1}^{r} \gamma_{44ik}\ \Delta SCE_{it-k} + \lambda_{4i} ECT_{it-1} + u_{4it} \quad \ldots\ldots\ldots (6)$$

Here, Δ represents the first difference and k shows the optimal lag length of the respective variables and that is determined through the AIC. ECT_{it-1} , denotes the speed of adjustment from long run disequilibrium, the statistical significance of this variable implies the long run association among the variables. The short-run causality can be determined from the equations 3 to 6. For example, if the all the estimated coefficients of HCE under the equation 3, jointly significant indicated the presence of causality from HCE to ROE, and reject the null of hypothesis of HCE does not granger cause to ROE. The similar results would be true for all remaining variables in all VECM equations, respectively.

4. Data and Variables

4.1. Data

For the purpose of studying relationship between intellectual capital and firm performance, data has been collected from 41 firms listed on Shanghai stock exchange. These firms are related to High-Tech industry of China. Data has been obtained from the annual reports and financial statements of these firms for the years 2005-2011. Thus this study is based on secondary data.

4.2. Variables

Firm performance and intellectual capital are the variables tested in this study. Firm performance is measured through Return on Equity (ROE) and intellectual capital through Value Added Intellectual Coefficient (VAIC) and its components HCE, SCE, and CEE. As the causality test is applied, all the variables are considered to be the endogenous variables. Thus, the number of equations would be same as number of endogenous variables.

4.2.1. Return on Equity (ROE)

Return on Equity measures a firm's profitability by revealing how much profit a firm generates with the money invested by shareholders of the company. The ratio is calculated by dividing net income by the shareholder's equity, where shareholders' equity is calculated by multiplying number of shares outstanding with the book value per share. It is a common measure of profitability and is used to know the performance of the firm.

4.2.2. Value Added Intellectual Coefficient (VAIC)

Value Added Intellectual Coefficient (VAIC), and its components, is used as the measure of intellectual capital of the firm in this study. Value Added Intellectual Coefficient (VAIC) model was developed by Ante Pulic in 1998. It is the mostly used model to measure intellectual capital in various studies that aim to study relationship of intellectual capital with other variables. The point that it gives a numerical value to the intellectual capital of the firm is perhaps the reason for its application. It makes the use of accounting numbers, which are both reliable and easily extractable from the financial statements, in order to calculate the intellectual capital. The purpose of the model is to measure the ability of the company to produce added value on the basis of its intellectual resources. The VAIC model consists of three components:

4.2.3. Human capital (HC):

Human capital is the most important component as it is the intellectual resource of the firm. Human capital is defined as the explicit and implicit knowledge, skills, abilities, capabilities, and behavior of the employees. With such an abstract nature, it is almost impossible to measure human capital of a firm to its accurate number. However, the more a firm spends on the development of the employees' knowledge, skills and behavior, the higher can be the human capital of the firm. Thus money spent on employees can be a good indicator of human capital and VAIC model measures human capital efficiency (HCE) through the same logic.

HC = salaries and wages

4.2.4. Structural capital (SC):

Structural capital encompasses the enabling structures that allow the organization to exploit the intellectual capital. It includes all the things available in the organization that facilitate human capital to create value. It ranges from the tangible assets to the intangible structure and culture of the organization. Structural capital has been defined as all the things that remain in the firm when employees go home. Thus, in VAIC model, SCE is calculated as the difference between produced added value and human capital.

SC = VA – HC

4.2.5. Capital employed (CE):

Capital employed refers to the physical capital employed for attaining business goals. It is interpreted as the financial capital of the firm.

CE = Total assets – Intangible assets

In order to calculate the values of VAIC and its three components HCE, SCE and CEE, first value added (VA) of the company is calculated by subtracting all the expensed incurred from the revenue earned during the year. Thus VA can be defined as the net value created by the firm during the year.

$$VA = S – E = NI + T + DP + I + W$$

Where:

S = Sales revenue

E = Expenses

NI = Net Income after Tax

T = Taxes

DP = Depreciation Expense
I = Interest Expense
W = Wages and salaries.
Interest expenses (I) and Wages and salaries (W) are added to the Net Income (NI) because they are considered investments that create value rather than expenses.
After calculating VA, the three components of VAIC can be calculated as follows:
HCE, Human capital efficiency = VA/HC
SCE, Structural capital efficiency = SC/VA and,
CEE, Capital employed efficiency = VA/CE.
VAIC is the sum of the three components thus it can be calculated as follows:

$$VAIC = HCE + SCE + CEE$$

5. Results and Discussion

This section presents the results of the various tests that were applied to the data in order to analyze the validity of the hypothesis developed in this study. Following table shows the descriptive statistics of the data.

5.1. Descriptive statistics

Table 1: Descriptive statistics

	ROE	HCE	SCE	CEE
Mean	4.636184	45.06372	0.907507	46.19043
Median	4.072319	11.94908	0.924661	13.04000
Maximum	39.90909	1176.727	1.272882	1177.728
Minimum	-26.30556	-410.3760	0.340000	-409.3784
Std. Dev.	7.228394	121.6538	0.115807	121.6163
Skewness	0.495920	4.826052	-1.113736	4.827726
Kurtosis	11.76171	36.24124	7.653847	36.26592

Source: Authors' Calculation

The descriptive statistics shows that mean value of SCE is very low which means that Chinese high-tech companies are not investing enough as compared to the other components of intellectual capital. However, the average value of HCE and CEE is high which indicate that firms in the Chinese high-tech industry do invest in intellectual capital. The following section presents the results of the tests applied in order to study the relationship between the disintegrated intellectual capital and performance of the firm.

5.1.1. Unit Root Test Results

Panel Unit root test

Table 2: Panel Unit root test results

Variable	LLC Test		IPS	
	Intercept	Intercept and Trend	Intercept	Intercept and Trend
ROE	-0.267	1.294	2.294	1.419
ΔROE	-5.673**	-4.825**	-8.6034***	-6.602***
HCE	-1.669	-3.483	-0.402	-0.053
Δ HCE	-8.964***	-8.428***	-5.070***	-3.926**
SCE	-1.370	-3.075	-1.801	-0.537
Δ SCE	-8.748***	-9.379***	-6.287***	-4.872***
CEE	-1.612	-3.496	-0.372	-0.038
Δ CEE	-9.016***	-8.279***	-5.089***	-4.0185**

Note: (i). ***, ** denotes the significance level at 1% and 5%. Δ Signifies the first difference and otherwise level

(ii) The maximum lag length has been selected according to SIC.

Source: Authors' Calculation

The result presented in table 2. shows the unit root test obtained through the LLC and IPS tests. Each of the tests is conducted with and without the intercept in the model. The results in both the tests confirm that the respective variables have got unit root at the level form and eliminated after taking the first difference or in other words we reject the null hypothesis of unit root in panel data at first difference at 1% and 5% significance level.

5.1.2. Panel Cointegration Test Results

The results related to panel cointegration test is presented in table 3 and 4. Table 3 shows the within and dimensions results and confirms the rejection of null hypothesis of no cointegration among the variables at the 1% significance level. Table 4 shows the kao cointegration test based on the residual that also supports the pedroni's panel cointegration test and rejects the null hypothesis with same level of significance. *Pedroni's Panel Co integration test*

Table 3: Pedroni's Panel Cointegration test results

Statistics	No intercept no time trend	Intercept
Panel v-stats	-2.015741	-1.562128
Panel rho-stats	0.857070	3.751466
Panel PP-stats	-6.108539***	-4.061929***
Panel ADF-stats	-6.051788***	-3.672972***
Group rho-stats	4.278661	6.819747
Group PP-stats	-20.55781***	-12.52686***
Group ADF-stats	-13.46603***	-6.196830***

Note: *** denotes the significance level at 1%.

Source: Authors' Calculation

Kao Residual Cointegration Test

Table 4: Kao residual cointegration test results

Statistics	Intercept
ADF	-6.936425***

Note: *** denotes the significance level at 1%.

Source: Authors' Calculation

5.1.3. Short run Causality Test based on VECM

Table 5: Short term Causality test results

	Δ ROE	Δ HCE	Δ SCE	Δ CEE	Δ VAIC	ECT
Δ ROE	-	5.234***	4.290***	4.696***	4.998***	-2.812***
Δ HCE	3.896**	-	0.022	0.042	-	-0.676
Δ SCE	6.313***	10.983***	-	10.976***	-	-1.615*
Δ CEE	3.907**	0.044	0.023	-	-	-0.679

***, ** & * denote the significance level at 1%, 5% and 10%.

Source: Authors' Calculation

Table 5, shows the results from the short run causality test based on VECM. The results signify bidirectional causality between ROE and HCE. This means that higher HCE results in higher ROE and vice versa. This confirms that performance of the firm is caused by knowledgeable and efficient employees. In turn, better performance of the firm helps employees to increase their knowledge and develop their skills. The results also show that ROE has bidirectional causality with all the other components of intellectual capital i.e. SCE and CEE.

However, the results show that there is unidirectional causality from HCE to SCE. This means that human capital causes structural capital but structural capital does not cause human capital. Similar result is shown for the relationship between CEE and SCE i.e. unidirectional causality from CEE to SCE.

5.1.4. Joint results of Short and Long run Causality-Strong Causality

Table 6 Joint results of Short and Long run Causality

	Δ ROE & ECT	Δ HCE & ECT	ΔSCE & ECT	Δ CEE & ECT	Δ VAIC & ECT
Δ ROE	-	206.727***	206.936***	206.683***	206.705***
Δ HCE	2.833**	-	0.157	0.171606	-
Δ SCE	4.574***	7.824***	-	7.820***	-
Δ CEE	2.839**	0.173	0.159	-	-

***& ** denote the significance level at 1% and 5%.

Source: Authors' Calculation

The results of joint causality in short and long run are presented in table 6. The results of joint causality confirm the causality pattern both in short-run and long-run and validate each other. This enables us to reject the null hypothesis that the components of VAIC do not granger cause ROE. This means that there is granger causality between intellectual capital and performance of the firm. As a result this leads us to accept our hypothesis that a firm with a higher value of intellectual capital

will perform better. It also confirms the hypothesis that a firm with higher performance will possess higher intellectual capital. The results presented in table 6 also reject the null hypotheses that HCE, SCE and CEE does not granger causes ROE.

6. Conclusion and recommendations

The previous studies on this subject tried to analyze the one way impacts of intellectual capital on the performance and the market value of the firm. So the research focus was limited to how the performance and the market value of the firm is influenced by the presence of intellectual capital. However, studies investigating the causes of intellectual capital or the factors that can influence the intellectual capital of a firm are rare. Therefore, in order to fill this research gap and to introduce unique research insight, this study attempts to investigate the influence of intellectual capital on firm performance and market value on 41 Chinese companies listed in Shanghai Stock Exchange. This paper employs Vector Auto-Regressive (VAR) model on panel data structure to assess the relationship between disaggregate intellectual resources and its impact on profitability at the firm level. This study empirically analyses both cross-sectional and time behavior of data, using unit root tests, cointegration, and granger causality tests respectively to obtain the results. This type of empirical technique is unique and used first time in the research rea of Intellectual Capital.

The results of the data analysis provide useful implications for the theory of intellectual capital. The results indicated, as found by previous researchers, that the presence of intellectual capital causes a firm to attain better performance. Thus intellectual capital is a valuable resource for the firms and they should manage it in a good manner in order to boost performance. The results also show that higher performance causes higher intellectual capital in the firm. This means that in order to create and develop its intellectual capital base, a firm has to improve its performance.

The results also show that all the components of intellectual capital i.e. HCE, SCE, and CEE have bidirectional causality with performance of the firm. However, HCE and SCE have unidirectional causality from HCE to SCE. This result supports the proposition proposed earlier that human capital is the intellectual resource that initiates the process of creating intellectual capital. Thus the firm has to try to develop the knowledge and skills of the employees and to modify their behavior in a positive way so to accumulate its base of intellectual capital.

This study produced some useful results for theory of intellectual capital by testing causality among different variables and not just one-sided relationship. However, there is a need for conducting more such studies in order to generalize these findings. The future researchers can use the method to investigate causality on some other country data and check whether the same results are produced. Few more such studies would produce the generalized conclusion about causality among intellectual capital and firm performance. Also it is important to study the causality among the different components of intellectual capital.

This study used Value Added Intellectual Coefficient (VAIC) model as the measure of intellectual capital. Although the model has been quite intensely used by researchers, it has some serious drawbacks. The most important of them is that it does not include relational capital in the model. Future researchers can modify this model to incorporate relational capital in it.

As this study uses the data of only 41 firms for 8 years, but future researchers can test the hypotheses on a sample of larger scale, so that to ascertain the findings.

References

Alcaniz, L., Gomez-Bezares, F. & Roslender, R. (2011). Theoritical perspectives on intellectual capital: A backward look and a proposal for going forward. *Accounting Forum,* 35**,** 104-117.

Bollen, L., Vergauwen, P. & Schnieders, S. (2005). Linking intellectual capital and intellectual property to company performance. *Management Decisions,* 43**,** 1161-1185.

Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Management decision,* 36**,** 63-76.

Bontis, N. (2001). Assessing knowledge assets: a review of the models used to measure intellectual capital. *International journal of management reviews,* 3**,** 41-60.

Breitung, J. & Pesaran, M. H. (2008). *Unit roots and cointegration in panels,* Springer.

Caddy, I. (2000). Intellecual capital: recognizing both assets and liabilities. *Journal of Intellectual Capital,* 1**,** 129-147.

Chen, M.-C., Cheng, S.-J. & Hwang, Y. (2005). An empirical investigation of the relationship between intellectual capital and firm's market value and performance. *Journal of Intellectual Capital,* 6**,** 159-176.

Choong, K. K. (2008). Intellectual capital: definitions categorization and reporting models. *Journal of Intellectual Capital,* 9**,** 609-638.

Clarke, M., Seng, D. & Whiting, R. H. (2011). Intellectual capital and firm performance in Australia. *Journal of Intellectual Capital,* 12**,** 505-530.

Dumay, J. C. (2012). Grand theories as barriers to using IC concepts. *Journal of Intellectual Capital,* 13**,** 4-15.

Edvinsson, L. (2000). Some perspectives on intangibles and intellectual capital. *Journal of Intellectual Capital,* 1**,** 12-16.

Firer, S. & Williams, S. M. (2003). Intellectual capital and traditional measures of corporate performance. *Journal of Intellectual Capital,* 4**,** 348-360.

Gowthorpe, C. (2009). Wider still and wider? A critical discussion of intellectual capital recognition, measurement and control in a boundary of theoretical context. *Critical Perspectives on Accounting,* 20**,** 823-834.

Guthrie, J. (2001). The management, measurement and the reporting of intellectual capital. *Journal of Intellectual Capital,* 2**,** 27-41.

Kannan, G. & Aulbur, W. G. (2004). Intellectual capital: Measurment effectivness. *Journal of Intellectual Capital,* 5**,** 389-413.

Kaufmann, L. & Schneider, Y. (2004). Intangibles A synthesis of current research. *Journal of Intellectual Capital,* 5**,** 366-388.

Komnenic, B. & Pokrajcic, D. (2012). Intellectual capital and corporate performance of MNCs in Serbia. *Journal of Intellectual Capital,* 13**,** 106-119.

Lu, W.-M. (2012). Intellectual capital and university performance in Taiwan. *Economic Modelling,* 29**,** 1081-1089.

Maditinos, D., Chatzoudes, D., Tsairidis, C. & Theriou, G. (2011). The impact of intellectual capital on firms' market value and financial performance. *Journal of Intellectual Capital,* 12**,** 132-151.

Martin-De-Castro, G., Delgado-Verde, M., Lopez-Saez, P. & Navas-Lopez, J. E. (2010). Towards 'An Intellectual Capital-Based Veiw of the Firm': Origins and Nature. *Journal of Business Ethics,* 98**,** 13.

Mehralian, G., Rajabzadeh, A., Sadeh, M. R. & Reza, H. (2012). Intellectual capital and corporate performance in Iranian pharmaceutical industry. *Journal of Intellectual Capital,* 13**,** 138-158.

Molodchik, M., Shakina, E. & Bykova, A. (2012). Intellectual capital transformation evaluating model. *Journal of Intellectual Capital,* 13**,** 444-461.

Muhammad, N. M. N. & Ismail, M. K. A. (2009). Intellectual capital efficiency and firm's performance: study on Malaysian financial sector. *International Journal of Economics and Finance,* 1**,** 206-212.

O'donnel, D., O'regan, P. & Coates, B. (2000). Intellectual capital: a Habermasian introduction. *Journal of Intellectual Capital,* 1**,** 187-200.

Orens, R., Aerts, W. & Lybeart, N. (2009). Intellectual capital disclosure, cost of finance and firm value. *Management Decisions,* 47**,** 1536-1554.

Pedroni, P. (1999). Critical values for cointegration tests in heterogeneous panels with multiple regressors. *Oxford Bulletin of Economics and statistics,* 61**,** 653-670.

Rodov, I. & Leliaert, P. (2002). FiMIAM: financial method of intangible assets measurement. *Journal of Intellectual Capital,* 3**,** 323-336.

Roos, G. & Roos, J. (1997). Measuring your company's intellectual performance. *Long Range Planning,* 30**,** 413-426.

Stewart, T. & Ruckdeschel, C. (1998). Intellectual capital: The new wealth of organizations. *Performance Improvement,* 37**,** 56-59.

Sveiby, K. E. (1997). The Intangible Assets Monitor. *Journal of Human Resource Costing and Accounting,* 2**,** 73-97.

Tan, H. P., Plowman, D. & Hancock, P. (2008). The evolving research on intellectual capital. *Journal of intellectual capital,* 9**,** 585-608.

V, M. & Ashrafali (2010). Impact of Intellectual capital on firm value: a panel data analysis of Indian IT firms. *Advances In Management,* 3**,** 49-57.

Vafaei, A., Tylor, D. & Ahmad, K. (2011). The value relevance of intellectual capital disclosures. *Journal of Intellectual Capital,* 12**,** 407-429.

Wang, W.-Y. & Chang, C. (2005). Intellectual capital and performance in causal models: evidence from the information technology industry in Taiwan. *Journal of Intellectual Capital,* 6**,** 222-236.

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Determinants of Job Satisfaction in Academic Professionals of Pakistan

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Abstract:
The purpose of this study is to explore and analyze the determinants of job satisfaction in academic professional of Pakistan. The job satisfaction was considered dependent variable and human resource management (HRM) practices (training and development, performance appraisal, career planning, and compensation) were predictor variables. Linear regression model was used in this study that demonstrated the overall effect of variable and data was collected from faculty members of four (two public and two private) different universities of Pakistan.
It has been found that performance appraisal and compensation are important determinants of job satisfaction among faculty members. Therefore, the management of universities in Pakistan should give considerable emphasis on performance appraisal. Interestingly, the analysis of means variation and independent t-test did not demonstrate a difference between faculty members of public and private universities in terms of job satisfaction and HRM practices. Future investigations should explore the underlying mechanism between the HRM practices and job satisfaction.

Keywords: Job Determinant, Human Resource Management, Job Satisfaction, Academic Professionals.

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1. Introduction

Job satisfaction has been of interest to researchers, because of its relationships with job performance and/or organizational commitment. The impact of various determinants of job satisfaction on organizational performance and employee attitudes has been extensively explored in developed countries (Delaney and Huselid, 1996; Huselid, 1995; Katou and Budhwar, 2007; Petrescu and Simmons, 2008). Nonetheless, limited research has been carried out in the context of developing countries. (Budhwar and Debrah, 2001; Sing, 2004; Yeganeh and Su, 2008). Therefore, this study attempts to explore determinants of job satisfaction in case of Pakistan.

Educational sector of any country has a unique importance particular in knowledge creation. Competitiveness of this sector mostly depends on the satisfactory involvement and commitment of its employees, hence perceived organizational practice and financial adequacy are the best predictor of job satisfaction (Leung et al, 2000). To attract and retain talented, dynamic and competent faculty and their performance management has become strategic human resource management (HRM) issue for universities (Chughtai & Zafar, 2006; Van den Brink et al, 2013).

Two types of educational institutions are prevailing in Pakistan; i.e. public and private universities. Previous research has explored the relationship between HRM practices and job satisfaction among faculty members either in public or in private universities; e.g. Munaf (2009), Shah et al (2012) and Halai (2013). However, both institutions vary in terms of quality, environment, faculty satisfaction and implementation of HRM practices in public and private institution also relatively differ (Munaf, 2009). Thereafter, this research conducts comparative analysis and explores the relationship between HRM practices and job satisfaction among faculty members of both public and private universities. Data has been collected from 102 faculty members (Lecturers, Assistant Professors, Associate Professors, and Processors) of business management department from four different universities located in capital area of Pakistan. The Survey questionnaire that is used in this study was adapted from the Singh, K (2004). The job satisfaction was considered dependent variable and HRM practices (training and development, performance appraisal, career planning, and compensation) were predictor variables. The correlation and regression analysis has been carried out to test following four hypotheses related with HRM practices and job satisfaction.

- Hypothesis 1: Training and development has positive and significant effect on job satisfaction of academic professional.
- Hypothesis 2: Performance appraisal has positive and significant effect on job satisfaction of academic professional.
- Hypothesis 3: Career planning has positive and significant effect on job satisfaction of academic professional.
- Hypothesis 4: Compensation has positive and significant effect on job satisfaction of academic professionals.

2. Literature Review

(Steijn, 4-7 September, 2002) found that job satisfaction of employees in public sector is on the decline. He analyzes the job satisfaction on the basis of four factors, individual characteristics, job characteristics, work environment variables and HRM practices. (Singh, 2004) examined positive relation of HRM practices with firm performance. (Pillay, 2009) identified low pay, workload and lower chances of promotion for work dissatisfaction among the professional nurses in public and private sector. Only social context of the work make them satisfied, they received intrinsic satisfaction from the patient care. In contrast; private sector nurses are only dissatisfied with their pay.

2.1. HRM practices and Job Satisfaction

Literatures in this perspective reveals that number of researchers have identified different factors of job satisfaction, such as achievement, advancement, recognition (Marchant, 1999), responsibility, work itself, relationships, policy and administration, salary, supervision, working conditions (Castillo & Cano, 2004) were factors for job satisfaction. The finding implies that faculty is mostly satisfied with 'job content' and least satisfies with 'job context'. The finding of (Berg, 1999) was contradictory to (Castillo & Cano, 2004). He argued that job satisfaction is not influenced by job characteristics. Balance between work and family impact job satisfaction.

The impact of Higher Education Commission of Pakistan policies on academic staff and their satisfaction was found inconsistent (Mapesela & Hay, 2005). They found that most of the policies have negative correlation with academic staff performance and their job satisfaction. On the other hand (Katou, 2008) found that HRM policies have a direct positive effect on outcome and organizational performance. The outcomes of organization are related to competence, cooperation with management, cooperation among employees, motivation, satisfaction, commitment and retention. Therefore underlying mechanisms are much important to explore.

2.2. Training and development

Training and development is defined by (Patrick, 2000) as "It is systematic development of the knowledge, skill, and expertise required by a person to effectively perform a given task or job". Although training and development enhances the skill, knowledge and competencies of the employee but now this concept has gone beyond the traditional interpretation. Learning opportunities were found most influential factors in job satisfaction (Schmidt, 2007). (Jones, Jones, Latreille, & Sloane, 2009) argued that job satisfaction increases through workplace training. Training and development programs minimize the gap between actual and desired performance. (Choo & Bowley, 2007) described the contributions of training and development initiatives and opportunities to enhance the skills always increases professionalism, increase employee commitment and job retention.

2.3. Performance Appraisals

Performance appraisal is used to evaluate the individual performance (attitude towards work, quality of work, personal achievement, and accomplishing organizational objectives). It is further helpful for compensation policy, career development and keeping the information about relative worth of the

employee for the organization (Chand & Katou, 2007). Performance appraisal positively influence the job satisfaction (Cook & Crossman, 2004) but fairness of the performance appraisal system is compulsory (Fletcher & Williams, 1996). According to the expectancy theory (Vroom, 1964) "individual attitude and choices based on expected results, motivation act as process governing choices" it emphasized to relate individual performance directly to the rewards and to ensure that rewards are given to those who deserved. Similarly equity theory (Adams, 1965) demonstrated that employee satisfaction explain in term of relational perception of fair and equal distribution of input. Realistic, faire and effective performance appraisal initiatives are the necessary prerequisite of overall job satisfaction (Saari & Judge, 2004).

2.4. Career Planning

Career planning has immense importance in HMR practice (Baruch, 1996) Similarly (Super, 1980) argued " Career is combination and sequence of roles played by person during the course of a lifetime". Psychological based theories revealed that if person actively participate in their vocations and do not bother about opportunities hunting than person is satisfied with his/her employment and his/her efficiency increases (Brown & Associates, 2002).

Career planning is a tool that aligns strategies with future HRM needs and encourages employee to strive for his personal development (Singh, 2004). Effectively functioning career planning system motivates the employees to take responsibility for their personal development and including the development of the company. The relationship between career planning and job satisfaction demonstrated by (Chen, Chang, & Yeh, 2004). The results revealed that career need of the employees varies at various stage of their career. If the gap between their apparent career and the career they desired is larger than their turnover intention and job dissatisfaction will be high.

2.5. Compensation

Compensation is an amount of monetary and non-monetary pay that employee get from the employer in return of work performed as required. Compensation influences the work motivation and job satisfaction (Berg, 1999). Performance based compensation contributes to achieve organizational goal and objective (Singh, 2004). In order to attract and retain the competent workforce; the universities offer competitive level of compensation to their faculty and recognize their achievements. Organization's commitment to faculty enhances the job satisfaction and improves academic quality (Comm & Mathaisel, 2003). The compensation packages to employees have different impact in different institutional setting.

(Macklin, Smith, & Dollard, 2007) demonstrated that same compensation package impact differently because of job characteristic, work stress, supervisor relationship and institutional structure. Comm & Mathaisel (2003) found that the faculty members were most satisfied with the autonomy of their jobs and ability to make their own decisions about work. In the light of expectancy and discrepancy theories, (Igalens & Roussel, 1999) examined the relationship of compensation with work motivation and job satisfaction. Their results implicated positive relationship among given variables.

3. Research Model and Methodology

3.1. Conceptual Framework

Literature Koustelios (2001); Ott and Dijk (2005) suggests that job satisfaction depends on different factors. The main objective of this study is to explore the effects of HRM practices on job satisfaction. This study focused on the relationship of performance appraisal, training, compensation, and career planning with job satisfaction. Here job satisfaction is dependent variable and explanatory variables are performance appraisal, training, compensation, and career planning as shown in Figure 1.

Figure 1: Conceptual framework

3.2. Research Methodology

3.2.1. Sample and Data Collection

Four universities (two from private sector and two public sector universities) were selected for this research. The target respondents were the academic professionals (lecturers, assistant professors, associate professors, professors) from the business administration department. The academic professionals with at least 2 year of experience in the same university were considered valid for this research. Information about faculty members was collected from website of Higher Education Commission of Pakistan (http://www.hec.gov.pk/Pages/HECMain.aspx). The Survey questionnaire that is used in this study was adapted from the Singh, K (2004). The questionnaire contained 36 items; in which 7 items were related to job satisfaction and other 29 are related to independent variables. Details of the questionnaire can be found in Appendix 1.

The total 180 questionnaires were distributed and 102 questionnaires were received therefore the response rate was 56%. All survey was treated confidentially. Five point liker scales was used. The respondents were asked to response the extent to which each statement is pertaining to his/her knowledge regarding HR practices and job satisfaction. Where 1=strongly Agree and 5=strongly disagree. Cronbach alpha was used to evaluate the reliability of the instrument. The values of reliability coefficients of all the variables are given below in Table 1.

Table 1. Reliability Statistic

Variable Name	Cronbach's Alpha	N of Items
Training and Development	0.81	7
Performance Appraisal	0.87	8
Career Planning	0.80	6
Compensation	0.85	8
Job Satisfaction	0.86	7

The correlation and regression analysis is used to identify the relationship between HRM practices and job satisfaction and effect of HRM practices on job satisfaction. To identify the differences and similarities between public and private universities; t-test, mean and standard derivation has been applied.

4. Analysis and Discussion

4.1. Frequency Distribution

Table 2 presents results of frequency distributions of the participants.

Table 2 Frequency Distribution

Variables	Frequency	Percentage
Designation		
Lecturer	53	52%
Assistant Professor	35	34%
Associate Professor	9	8.8%
Professor	5	4.8%
Year of Experience		
1-2	28	27.5%
2-5	31	30.4%
5-8	27	26.5%

8-10	8	7.8%
10-13	4	3.9%
>13	4	3.9%
Qualification		
Master	49	48.0%
MS/M Phil	36	35.3%
PhD	15	14.7%
Post Doc	2	2%
Questionnaire filled by University Nature		
Public	56	54.9%
Private	46	45.1%
Gender		
Male	70	68.6%
Female	32	31.4%
Age		
< 25	6	5.9%
25-30	29	28.4%
30-35	24	23.5%
35-40	18	17.6%
40-45	17	16.7%
45-50	4	3.9%
>50	4	3.9%

4.2. Mean, Standard Deviation and T-Test

The results of Table 3 compared the means of variables through independent t-test. Insignificant difference was found of job satisfaction (t = -.083, df = 100, p>0.05) between academic professionals working under private and public sector universities of Pakistan. This indicates that the job satisfaction level of public and private sector academic professionals of Pakistan is same.

Table 3. T-Test

Variables	Academic Professional	N	Mean	SD	t-value	df	Sig (2-tailed)
JS	Public	56	3.30	1.439	-.083	100	.935
	Private	46	3.33	1.301			
T&D	Public	56	3.21	1.358	-.169	100	.866
	Private	46	3.26	1.405			
PA	Public	56	3.41	1.437	-.319	100	.751
	Private	46	3.50	1.378			
CP	Public	56	3.48	1.348	-1.580	100	.124
	Private	46	3.87	1.128			
C	Public	56	3.20	1.445	-1.412	100	.164
	Private	46	3.59	1.343			

Similarly insignificant differences were found on the variables of Training & development (t = -.169, df = 100, p>0.05), performance appraisal (t = -.319, df = 100, p>0.05), career planning (t = -1.580, df = 100, p>0.05), and compensation (t = -1.445, df = 100, p>0.05), between academic professionals working under private and public sector universities of Pakistan. The results revealed that HRM practices (training & development, performance appraisal, career planning, and compensation) of public and private sector universities of Pakistan are not different.

4.3. Correlation

Table 4 shows correlation between dependent and independent variables. It can be seen that the correlation between training & development and job satisfaction is significant. Pearson value .365* is significant at .05 level. The correlation between performance appraisal and job satisfaction is significant (.692**) at .01 level. The correlation between career planning and job satisfaction is significant (.520*) significant at .05 level. The correlation between compensation and job satisfaction is significant (.719**) at .01 level.

Table 4 Correlation Matrix

		TD	JS	PA	CP	C
TD	Pearson Correlation					
	Significance					
	N	___				
JS	Pearson Correlation	.365*	.			
	Significance	.000				
	N	102	___			
PA	Pearson Correlation	.442**	692**			
	Significance	000	.000			
	N	102	102	___		
CP	Pearson Correlation	.630**	.520*	.607**		
	Significance	.000	.000	.000		
	N	102	102	102	___	
C	Pearson Correlation	.493**	.719**	.736**	.580**	
	Significance	.000	.000	.000	.000	
	N	102	102	102	102	___

*Correlation is significant at 0.05 levels.

**Correlation is significant at 0.01 levels.

4.4. Regression

Table 5 represents the Regression coefficient 'R' = .763 or 76.3% which means that relationship between dependent variable (job satisfaction) and independent variables (training & development, career planning, performance appraisal and compensation) is positive. The coefficient of determination 'R^2' = 0.581 show that 58.1% of variation in job satisfaction is explained by training & development, career planning, performance appraisal and compensation.

Table 5 Regression model summery

Model	R	R Square	Adj. R Square	Std. Error of Estimate
1	.763	.581	.560	0.910

Table 6 shows the ANOVA results of the model. The F-test value is 26.677 and is significant. This also implies that the association between dependent variable and independent variables is statistical significant and the regression model is valid. The valid regression model reveals that all independent variables (training & development, career planning, performance appraisal and compensation) are showing a positive and significant relationship with job satisfaction (dependent variable). The result is significant therefore alternative hypothesis will be accepted that is: HRM practices have positively and significantly association with job satisfaction.

Table 6. ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig
1	Regression	110.460	5	22.092	26.677	.000
	Residual	79.501	96	.828		
	Total	189.961	101			

a. Predictors: training & development, career planning, performance appraisal, and compensation

b. Dependent variable: job satisfaction

Table 7 shows coefficient results of training & development, career planning, performance appraisal, and compensation.

Table7. Coefficients

Model	Unstandardized Beta	Coefficient Std. Error	Std. Coefficient Beta	T	Sig
1 (Constant)	0.512	0.298		1.718	0.089
T&D	0.170	0.181	0.170	0.938	0.351
PA	0.327**	0.102	0.335	3.218	0.002
CP	0.105	0.106	0.096	0.998	0.326
C	0.436**	0.100	0.447	4.360	0.000

a. *Significant level is 0.05
b. ** Significant level is .01
c. Dependent Variable is Job Satisfaction

In the above table, the regression coefficient for training and development of the academic professionals is ($\beta_{1)}$ = .170. This implies that one percent increase in training and development results in 17% increase in job satisfaction level if other variables are kept controlled. The T-test value is 0.938 which is insignificant at .351. This demonstrates that the relationship between training and development of academic professionals and job satisfaction is positive and insignificant but overall regression model is valid. So the hypothesis 1st (Training and development has positive and significant effect on job satisfaction of academic professionals) is rejected because training and development has insignificant effect of job satisfaction.

The regression coefficient for performance appraisal of the academic professionals ($\beta_{2)}$ =.335** which reveals that one percent increase in performance appraisal will result in 33.5% increase in job satisfaction level if other variables are kept controlled. The T-test value is 3.218 which significant at .002. This shows that the relationship between performance appraisal of academic professionals and job satisfaction is positive and significant and overall regression model is valid. So the hypothesis 2nd (performance appraisal has positive and significant effect on job satisfaction of academic professionals) is accepted because performance appraisal has positive and significant effect on job satisfaction of academic professional.

The regression coefficient for career planning of the academic professionals is ($\beta_{3)}$ =.105. This means that one percent increase in career planning will result in 10.5% increase in job satisfaction level if other variables are kept controlled. The T-test value is 0.998 which insignificant at .326 because significance level is less than .05. It implies that the relationship between career planning of academic professionals and job satisfaction is positive and insignificant and overall regression model is valid. So the hypothesis 3rd (career planning has positive and significant effect on job satisfaction of academic professional) is rejected because career planning has insignificant effect on job satisfaction.

The regression coefficient for compensation of the academic professionals is ($\beta 4_{)}$ =.436. This reveals that one percent increase in compensation will increase job satisfaction level by 43.6%. The T-test value is 4.360 which is significant at .000. That shows that the relationship between compensation of academic professionals and job satisfaction is positive and significant and overall regression model is valid. So hypothesis 4th (compensation has positive and significant effect on job satisfaction of academic professionals) is accepted because compensation has positive and significant effect on job satisfaction.

5. Conclusion

This study has explored the relationship between HRM practices and job satisfaction of academic professional in public and private universities of Pakistan. Linear regression model was used in this study that demonstrated the overall effect of variable and data was collected from faculty members of four (two public and two private) different universities of Pakistan.

It has been found that HRM practices are much important for job satisfaction of academic professional. Although motivational factors, institutional structure and job description impact on job satisfaction but HRM practices have clear importance in recent context. The investigation was found inconsistent with assertion that HRM practice and job satisfaction do differ in public and private

universities. The potential reason for insignificant difference in public and private universities is the operational execution of HRM practices. Although the institutional environment seems different but the HRM practices, their execution, implementation and resulting outcomes are same.

The two HRM practices, performance appraisal and compensation, are significantly related with job satisfaction. Hence performance appraisal and compensation are important determinant of job satisfaction of academic professional in public and private universities of Pakistan. The management of universities in Pakistan should give considerable emphasis on performance appraisal and periodically performance appraisal should be conducted. Promotion, incentives, recognition and appreciation should be performance based. Second, compensations have significant and prominent determinant of academic professional's job satisfaction. Competitive salary packages, periodic increment, and additional benefits (medical insurance, house allowance, child education support) leveraged academic professional's job satisfaction. Future work should increase the sample size by collecting data from different universities. Cross-cultural and longitudinal research can also provide us a unique insight between different culture and over time changes.

References

Adams, J. S. (1965). Inequity in social exchange. *Advances in Experimental and Social Psychology, 2*(Academic Press, New Your, YN).

Agho, A. O. (1993). Determinants of Employee Job Satisfaction: An Empirical Test of a Causal Model. *Human Relations, 46*(8), 1007-1027.

Barrows, D., & Wesson, T. (2001). A Comparative Analysis of Job Satisfaction among Public and Private Sector Professionals. *The Innovation Journal*.

Barry, G. (1987). How important are dispositional factors as determinants of job satisfaction? Implications for job design and other personnel programs. *Journal of Applied Psychology, 72*(3), 366-373.

Baruch, Y. (1996). Organizational career planning and management techniques and activites in use high-tec Organization. *Career Development International, 1*(1), 40-49.

Berg, P. (1999). The Effects of High Performance Work Practices on Job Satisfaction in the United States Steel Industry. *Relations industrielles, 54*(1), 111.

Brown, D., & Associates. (2002). Career Choice and Development. *JOSSEY-BASS, A Wiley Company*.

Budhwar, P.S. and Debra, Y. (2001). Human Resource Management in Developing Countries. Routledge.

Castillo, J. X., & Cano, J. (2004). Factors Explaining Job Satisfaction Among Faculty. *Journal of Agricultural Education, 45*(3).

Chand, M., & Katou, A. A. (2007). The impact of HRM practices on organisational performance in the Indian hotel industry. *Employee Relations, 29*(6), 576-594.

Chen, T.-Y., Chang, P.-L., & Yeh, C.-W. (2004). A study of career needs, career development programs, job satisfaction and the turnover intentions of R&D personnel. *Career Development International, 9*(4), 424-437.

Choo, S., & Bowley, C. (2007). Using training and development to affect job satisfaction within franchising. *Journal of Small Business and Enterprise Development, 14*(2), 339-352. Chughtai, A. A., & Zafar, S. (2006). Antecedents and Consequences of Organizational Commitment Among Pakistani University Teachers. *Applied H. R. M. Research, 11*(1), 39-64.

Comm, C. L., & Mathaisel, D. F. X. (2003). A case study of the implications of faculty workload and compensation for improving academic quality. *The International Journal of Education Management, 17*(5), 200-210.

Cook, J., & Crossman, A. (2004). Satisfaction with performance appraisal systems: A study of role perceptions. *Journal of Managerial Psychology, 19*(5), 526-541.

Delaney, J.T. & Huselid, M.A. 1996. The impact of human resource management practices on perceptions of performance in for-profit and nonprofit organizations. *Academy of Management Journal*, 39, 949-969.

Fletcher, C., & Williams, R. (1996). Performance Management, Job Satisfaction and organizational commitment. *British Journal of Management, 7*, 169-179.

Gaertner, S. (1999). Structural Determinants of Job Satisfaction and Organizational Commitment in Turnover Models. *Human Resource Management Review, 9*(4), 479-493.

Ghebregiorgis, F., & Karsten, L. (2007). Employee reactions to human resource management and performance in a developing country: Evidence from Eritrea. *Personnel Review, 36*(5), 722-738.

Halai, N. (2013). Quality of private universities in Pakistan: An analysis of higher education commission rankings 2012. *International Journal of Educational Management, 27*(7),

HEC, R. (2009). According to HEC ... *Magazine%20December%202009/Magazine%20December%202009.html*

Huselid, M.A. 1995. The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38:635-672.

Igalens, J., & Roussel, P. (1999). A study of the relationship between compensation package, work motivation and job satisfaction. *Journal of Organizational Behavior, 20*, 1003-1025.

Jones, M. K., Jones, R. J., Latreille, P. L., & Sloane, P. J. (2009). Training, Job Satisfaction, and Workplace Performance in Britain; Evidence from WERS 2004. *LABOUR (Special Issue), 23*, 139-175.

Katou, A.A., & Budhwar, P.S. (2007). The effect of human resource management policies on organisational performance in Greek manufacturing firms.*Thunderbird International Business Review*, 49, 1-35.

Katou, A. A. (2008). Measuring the impact of HRM on organizational performance. *Journal of Industrial Engineering and Management, 1*(2).

Kaye, L. (1999). Strategic human resources management in Australia; the human cost. *International Journal of Manpower, 20*(8), 577-587.

Koustelios, A. D. (2001). Personal Characteristics and job satisfaction of Greet teachers. *The International Journal of Education Management, 15*(7), 354-358.

Leung, T.-w., Siu, O.-l., & Spector, P. E. (2000). Faculty Stressors, Job Satisfaction, and Psychological Distress Among University Teachers in Hong Kong; The Role of Locus of Control. *International Journal of Stress Management, 7*(2), 121-138.

Lorange, P. (2006). A performance-based, minimalist human resource management approach in business schools. *Human Resource Management, 45*(4), 649-658.

Macklin, D. S., Smith, L. A., & Dollard, M. F. (2007). Public and private sector work stress; Workers compensation, level of distress and job satisfaction, and the demand-control-support model. *Australian Journal of Psychology, 58*(3), 130-143.

Mapesela, M., & Hay, H. R. (2005). Through the magnifying glass: A descriptive theoretical analysis of the possible impact of the South African higher education policies on academic staff and their job satisfaction. *Higher Education, 50*(1), 111-128.

Marchant, T. (1999). Strategies for Improving Individual Performance and Job Satisfaction at Meadowvale Health. *Journal of Management Practice, 2*(3).

McCook, K. D. (2002). Organizational Perceptions and their Relationships to job Attitudes, Effort, Performance and Organizational Citizenship Behaviors. *A Dissertation, Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College*.

Moshavi, D., & Terborg, J. R. (2002). The job satisfaction and performance of contingent and regular customer service representatives. *International Journal of Service Industry Management, 13*(4), 333-347.

Munaf, S. (2009). Motivation, Performance and Satisfaction among University Teacher; Comparing Public and Private Sectors in Pakistan and Malaysia. *South Asian Journal of Management*.

Oshagbemi, T. (1996). Job Satisfaction of UK Academics. *Educational Management Administration & Leadership, 24*(4), 389-400.

Ott, M., & Dijk, H. v. (2005). Effects of HRM on client satisfaction in nursing and care for the elderly. *Employee Relations, 27*(4), 413-424.

Patrick, J. (2000). Training. In N. Chmiel (Ed), Introduction to work and organizational psychology. *Oxoford, UK: Blackwell*, 100-125.

Petrescu, AI, and Simmons, R. (2008). Human resource management practices and workers' job satisfaction. *International Journal of Manpower*, 29(7), 651-657.

Pillay, R. (2009). Work satisfaction of professional nurses in South Africa: a comparative analysis of the public and private sectors. *Human Resour Health, 7*, 15.

Saari, L. M., & Judge, T. A. (2004). Employee attitudes and job satisfaction. *Human Resource Management*, 43(4), 395-407.

Schmidt, S. W. (2007). The relationship between satisfaction with workplace training and overall job satisfaction. *Human Resource Development Quarterly, 18*(4), 481-498.

Sett, P. K. (2004). Human Resource Management and Firm Level Restructuring; The South Asian Drama. *Research and Practice in Human Resource Management, 12*(1), 1-33.

Shah, S. M. A., Lagari, M. K., & Rani, D. I. (2012). Impact of organizational culture on the employee's job satisfaction; A study of facultuy members of private sector universities of Pakistan. *Asian Journal of Business and Management Sciences, 1*(12), 92-101.

Singh, K. (2004). Impact of HR practices on perceived firm performance in India. *Asia Pacific Journal of Human Resources, 42*(3), 301-317.

Steijn, D. B. (4-7 September, 2002). HRM and job Satisfaction in the Dutch Public Sector. *EGPA-Conference in Potsdam*.

Super, D. E. (1980). A life-span, life-space approach to career development. *Journal of Vocational Behavior, 16*(3), 282-298.

Van den Brink, M., Fruytier, B., & Thunnissen, M. (2013). Talent management in academia: performance systems and HRM policies. *Human Resource Management Journal, 23*(2), Vroom, V. (1964). Work and Motivation. *Wiley, New York, NY*.

Wan, H. L. (2007). Human capital development policies: enhancing employees' satisfaction. *Journal of European Industrial Training, 31*(4), 297-322.

Y e g a n e h , H., and S u , Z.(2008) An Examination of human resource management practices in Iranian public sector.Personnel Review, Vol. 37, No.2, 203 221.

Yuan, T. (1997). Determinants of job satisfaction of federal government employees. *Public Personnel Management, 26*(3), 313-334.

Appendix 1: Questionnaire

HUMAN RESOURCE MANAGEMENT (HRM) PRACTICES

Note: A number of statements dealing about various aspects of Human Resource Management practices in your university are given below. Please indicate the extent to which each statement describes your university using the following:

SA	Strongly Agree
A	Agree
N	Neutral
D	Disagree
SD	Strongly Disagree

1. Job Satisfaction

Management trust in me, satisfy me on my job					
Useful and important work satisfy me on my job					
The work I do on this job is very meaningful to me					
I feel a very high degree of personal responsibility for the work I do on this job					
I feel a great sense of personal satisfaction when I do my job well					
By doing work here; I feel a sense of achievement in my career					
I feel satisfied and happy when I discover that I have performed well on this job					

2. Training and Development

Our university conducts extensive training programs for its faculty in all aspects of quality					
Faculty in each job normally go through training programs every year					
Training needs are identified through a formal performance appraisal mechanism					
There are formal training programs to teach new faculty member, the skills they need to perform their jobs					
New knowledge and skills are provided to faculty periodically to done their work in university					
Training needs identified are realistic, useful and based on the business strategy of the university					

3. Performance Appraisal

Performance of the faculty is measured on the basis of objective quantifiable results					
Appraisal system in our university is growth and development oriented					
Faculty are provided performance based feedback and counseling					
Faculty have faith in the performance appraisal system					
Appraisal system has a strong influence on individual behavior					
The appraisal data is used for making decisions like job rotation, training and compensation					
The objectives of the appraisal system are clear to all faculty					

4. Career Planning

Individuals in this university have clear career paths					
Employee's career aspirations within the university are known by his/ her immediate superior					
Faculty in our university have more than one potential position for promotion					
Individual and university growth needs are matched in this university					
Our university plans for the career and development of faculty					
Our university prefers an internal employee whenever a vacancy exists					
Each employee is aware of his/her career path in the university					

5. Compensation

Job performance is an important factor in determining the incentive compensation of faculty					
In our university, salary and other benefits are comparable to the market					
In our university, compensation is decided on the basis of competence or ability of the employee					
The compensation for all faculty is directly linked to his/her performance					
In our university, recognition is used as a mechanism to appreciate higher performance					

Any Other Opinion Related to this Topic:

_____

Demographics

Name (Optional) _____

Designation:

Year of Experience in this University: 0-2, 2-5, 5-8, 8-10, 10-13, 13>

Qualification: Master, MS/ M Phil, PhD, Post Doc

University Nature: (please tick one) Public Private

Gender: Male Female

Age: <25, 25-30, 30-35, 35-40, 40-45, 45-50, 50>

Thank you for your time

Best Regard,

Ali Ahmad

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Home Equity Bias

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Abstract:
This study is aimed to investigate the factors that are intended to lessen the home equity bias or became a base for foreign diversification. By using the foreign diversification of twenty-one developing countries over a period of ten years and incorporating the effect of nine important variables for exploring their effect on home bias. The results from Random effect panel regression shows a diminishing trend of investors towards home equity biasness and the contributing factors for lessening this bias are local market share in world market capitalization and information available to investors and trade opening.

Keywords: Behavioral Finance, Foreign Diversification, Behavioral Finance, Political risk

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1. Introduction

According to standard Finance, all the rational investors want to diversify the unsystematic risk a part of their investment, by portfolio formation. Hence investors successfully can get rid of diversifiable risk but there have always been some assumption taken in standard finance models, which should never be relaxed in order to get results according to standard finance theories. As the modern portfolio theory which states that rational investor will always make a portfolio that will lay on efficient frontier but this is again assumptions based. Implementation for standard finance can never bring the required results until and unless the pre described assumptions do not hold. So violation of one assumption can lead to unexpected results. These proposed discrepancies are the result of human element the (actual decision makers') omission in standard finance.

Standard finance can disseminate information but the human cognitive abilities will process and covert this information according to their frame of references that will strongly affect investor's financial choices.

Despite the greater advantages of international diversification, investors prefer to invest in local equity, in international finance this term is referred as "Home Equity Bias".

This behavioral stand point is supported by various previous studies as Coval and Moskowitz (1999) found international markets investors strongly prefer domestic equities even over the gains of international diversification by virtually ignoring foreign opportunities

This study is supposed to serve three objectives, first Home bias is the results of certain costs taxes, transactions cost, inflation risk, exchange rate risk, government rules & regulations, limited information, time difference. Second or this is biased behavior of investor towards their home country equity. Third to incorporate political instability and its linkage with home bias in a country like Pakistan that is highly exposed to political insatiability shocks since its establishment.

Theoretical base suggests that it is a tendency for investors to invest in a large amount of domestic equities, despite the purported benefits of diversifying into foreign equities. This bias is believed to have arisen as a result of the extra difficulties associated with investing in foreign equities, such as legal restrictions and additional transaction costs.

Moreover here are certain problems associated with home bias puzzle like inefficient portfolio allocation .This phenomenon is completely against diversification theory, in the light of previous researches home bias is also explained with support of certain investment barriers including foreign taxes, high transaction cost foreign and local government restrictions. But investor strong inclination and preference towards home equity remains constant after a remarkable diminish in restrictions.

The study that is quite important in Pakistani perspective as this is a developing country where the stock exchanges are of not level of developed countries and where there high political risk in terms of instability is available. so investor can become well off by making a portfolio that is made by foreign diversification.

The rest of this paper proceeds as follows. Section 2 briefly explains previous work done on this topic in the shape of literature review. Section 3 motivates the research methodology and explains the measurement of foreign diversification. Section 4 provides results of various statistical tests. Section 5 concludes.

2. Literature Review

Financial theory advocates greater benefits of international equity diversification. Many authors including Solnik (1974), French and Poterba (1991), Tesar and Werner (1995), Lewis (2007) and Coeurdacier and Gourinchas (2013) have emphasis low risk and high returns of international diversification. Theoretical model put forwarded by Michaelides (2005) also suggest that investors may be better off to diversify its investment in foreign equity to avoid income shocks leading to low domestic returns.

Despite the greater advantages of international diversification, investors prefer to invest in local equity, in international finance this term is referred as "Home Equity Bias".

Many authors have worked upon various empirical explanations for Home Equity Bias and tried to solve this puzzle by taking different market frictions such as taxes, transactions cost, inflation risk, exchange rate risk, government rules & regulations, limited information and time difference.

The studies of Black (1974), Stulz (1981), and Lewis (2007) tried to explain the Home Equity Bias in the light of tax discrepancies by suggesting that investors may have to bear additional transactional cost of holding foreign equity due to taxes. Further Cooper and Kaplanis (1994) added that the investors prefer local equity as it provides hedge against inflation. Kang & Stulz (1995) and Stulz & Wasserfallen (1995) highlighted the institutional policies, rule and regulation could be the reason for local investment preference. But, these arguments were negated by Tesar and Werner (1995) work, who found that the foreign equity has higher turnover rate compared to local equity.

Moreover French and Poterba (1990) studied the pattern of holding Japanese and U.S. stocks and come up with a conclusion that there was very little international diversification in Both Japanese and U.S investors portfolios and this was the result of Home bias phenomenon as here benefits of going global in terms of higher returns were quite greater than its costs .

French and Poterba (1991) further extended their work and presented model which shows that the investors perceive higher expected returns in local market than in foreign market. It is investor's choice which play influential role in investment decision in Local equity rather than institutional factors. With regard to preference of local equity investment over foreigner one Frankel (1993) suggested that the local investor perceive investment in their local currency less risky than foreign currency.

The Home Bias Puzzle was moreover explored by Bellah and Sendi (2010) Lane and Milesi-ferretti (2003) and Karlsson and Nordén (2007) who tried to explain the home equity bias on the basis of international asset pricing models by taking into account the factors such as exchange rate risk, inflation risk, taxes, transactions costs, human capital, market restrictions and asymmetric

information. They conclude these factors don't contribute a lot in investment diversification decision. The study argued that the investors are subject to behavioral biases when making diversification decision.

Standard Finance model suggest that home equity bias could be explained through information asymmetries. The studies of Bernnan and Cao (1997) Boyle, Uppal and Wang (2003) and Jeske (2001) incorporated Information asymmetries as probable cause for home equity bias and suggested that if investors are ambiguous about the returns on international portfolio they will not diversify and invest in local stocks hence informational dissimilarities between local and foreign investors will path away for Home equity bias.

Ahearne and Warnock (2004) also recommended information costs as an indirect barrier to international investment that owe to the poor quality and low credibility of financial information in many countries. Nieuwerburgh and Veldkamp (2007) criticize information-based models of the home bias and argue that if local investors have limited information about foreign market then they should acquire information and reduce uncertainty. Coval (2000) and Evans and Lyons (2004) oppose it by their studies where they found that despite greater availability of information investor still prefer to invest in local equity.

Hau (2000) examined the role of informational asymmetries across and location of investor in home equity bias and found that both factors do play a role in home equity bias.

Benigno and Nisticò (2009) were the authors who suggested that home equity bias is based on exchange rate risk and ambiguity aversion. In addition Bentabet and Fetni (2013) presented the currency index capital asset pricing model in presence of shadow costs of incomplete information

Kang and Stulz (1997) tried to explain home bias with respect to size of firms and they found foreign investors are strongly biased against small firms and due to this prefer to invest in large firms. Coval and Moskowitz (1999) contributed that U.S. investment managers' exhibit a strong preference for locally headquartered firms, particularly small, highly levered firms that produce nontrade goods.

Christelis, Jappeli, Padula (2007) studied about the relationship between cognitive abilities on holding of local stocks. They conclude that it is information constraints which prevent investors from diversification rather features of preferences or psychological traits

On the other hand some studies suggest that home equity bias is reducing as Amadi (2004), Coeurdacier and Rey (2011) suggested that due to factors like free trade, globalization, easily availability of information through internet and mutual funds markets have significantly reduced the home equity bias.

Recent studies indicate that information and transaction costs can be reduced through enhanced financial integration, which in turn significantly reduce equity home bias. Baele et al. (2007) and Sorensen et al. (2007) suggested that investors can trade assets and equities freely at lower cost as capital markets are increasing becoming more globally integrated, Furthermore, developing economic and financial integration would reduce information asymmetry between local and foreign

investors, resulting in reduction of equity home bias. Baele et al. (2007) tested this hypothesis and identified that there is considerable decline in equity home bias of countries that are more financially integrated and linked with each other. Mondria and Wu (2010) developed a theoretical model and argued that with inadequate information and decreases in financial openness there is increase in home bias. They showed that at initially stage of financial liberalization local investors have more information about local market compared to foreign market and they prefer to invest local market resulting in increase in home bias. However, as local investors receive more information about foreign assets in advance stage of financial liberalization, local investors invest more internationally so home bias declines. Bekaert and Wang (2009) showed that familiarity and information factors, along with degree of capital market openness are crucial in explaining home bias as well as foreign bias. We have selected financial integration factor in our study due to fact that most of the literature dealing with financial integration impact on home bias has been largely limited to advanced and developed economies of Europe and United States.

Literature also suggests that the better regulatory quality significantly reduces equity home bias. Baele et al. (2007), Bekaert and Wang (2009), and Jochem and Volz (2011) have found that those countries which has strong rule of law, better protection for shareholder, and minimal corruption tends to reflect lower equity home bias.

Notable progress on home bias issue that also serve our this study area of research in a developing country like Pakistan was made by Alam, Arshad and Dr.Shah (2012) who studied the data of foreign diversification of nine developed nations and found that home equity bias has reduced due to trade openness and easily available data.

Area of research for this paper would be to analyze the role is to search out positive link between political instability and foreign diversification by incorporating different measures of accessing political instability country.

3. Data and Methodology

This is secondary data based study which is aimed to investigate how much investors are biased towards home equity and investigate the influence of various factors on foreign diversification. For this regard 21 emerging countries Argentina, Brazil Bulgaria, Chile, China, Colombia, Estonia, Hungary, India, Indonesia, Malaysia, Mexico, Pakistan, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey and Ukraine data consist of ten years' time span and ranges from 2003-2012 is taken. Sample was derived on the basis of the International Monetary Fund (IMF) categorization of countries labeled as "emerging economies". Proposed factors of the study are country market share of world capitalization, the difference between local market indexes return and world market index return, portion of export and import in gross domestic product (GDP), information available to investors, emerging markets share in world capitalization, country political insatiability (risk), regulatory quality of country, financial integration of local and global market and variation in exchange rate of country.

Foreign Diversification is the dependent variable of the study that is calculated by using following equation:

Equation 1

$$\text{Foreign diversification of a country, FD} = \frac{\text{FEA}_{x,t}}{\text{SMCAP}_{x,t} + \text{FEA}_{x,t} - \text{FEL}_{x,t}}$$

Where;

$SMCAP_{xt}$ = Stock market capitalization of a country x at time t

FEA_{xt} = Foreign equity assets held by a country x at time t

FEL_{xt} = Foreign equity liabilities held by a country x at time t

Equation (1) provides the details about each country foreign diversification. Higher value of the foreign diversification reflects that the inventors of particular country are investing in other country equities. Whereas, lower values of foreign diversification reflect the home equity bias attitude of investors of particular country.

Empirical specification: After calculating the foreign diversification position of each country, we conducted panel data analysis to identify what factors are crucial for explaining the home equity bias. We used equation (2) to run the panel data regression.

Equation 2

$$FD_{x,t} = \alpha + \beta_1 MWCAP_{x,t} + \beta_2 RDWLI_{x,t} + \beta_3 SIEGDP_{x,t} + \beta_4 INFO_{x,t} + \beta_5 SEMCAP_t + \beta_6 PI_{x,t} + \beta_7 RQ_{x,t} + \beta_8 FI_{x,t} + \beta_9 ERV_{x,t} + \varepsilon_{x,t}$$

Where,

$MWCAP_{xt}$ represents the market share of world capitalization of country, according to capital asset pricing model investors are required to diversify their portfolio with respect to country's world market capitalization share. Hence this factor should have significant relationship with foreign diversification.

$RDWLI_{x,t}$ represents difference between the world market index and returns (annual) of local market index. The investors' foreign diversification is based on performance of foreign market so as foreign market performance increases likewise the foreign diversification. This is the variable that helps out for checking mindset of investor that either change in market returns also brings change in trend of foreign investment or leave it as it is.

Equation 3

$$RDWLI_{xt} = \text{Local Market Returns} - \text{World Market Returns}$$

$SIEGDP_{x,t}$ represents the share of imports and exports share in Gross Domestic Product (GDP). This variable is used to measure the willingness of investor for foreign portfolio investment so it possesses a significant effect on foreign diversification.

Equation 4

$$SIEGDP_{xt} = 0.5\ [Import + Export] / GDP$$

$INFO_{x,t}$ is abbreviated for Information. It is regarded as quite influential factor that hinder or accelerate foreign diversification. Information availability is measured with the help of proxy of number of internet users at a country x at time t.

$SEMCAP_t$, represents share of emerging markets in the world capitalization, this is time variant variable used to identify the role of emerging markets in foreign diversification.

$PI_{x,t}$ represents Political Instability (Risk) of any country $_x$ at time $_t$ is taken as independent variable as the political environment of country can influence the investment decision of the investors.

$RQ_{x,t}$ indicates regulatory quality index captures perceptions about government ability to formulate and implement comprehensive policies and regulations that promote development of private sector. It includes regulatory perception measures on transparency in financial institutions, access to capital markets, bank regulation, and legal framework.

$FI_{x,t}$ represents Financial Integration. This independent variable measures the regional and global financial integration. Higher level of financial integration reduces transaction and information cost which in turn reduces the home equity bias. Financial Integration is measured through the Chinn-Ito index (KAOPEN 2006)

$ERV_{x,t}$ represents Exchange Rate Variation. It measures the fluctuations in nominal exchange rate of any country. Exchange rate volatility may increase the trading cost and reduce return therefore it is very important to understand the impact of exchange rate fluctuations on foreign diversification.

Data of Foreign equity holdings is taken from (IMF) international monetary fund's data mine. Data of Gross Domestic product (GDP), imports, exports and country wise market capitalization and nominal exchange rate is taken from the database of World Bank World development Indicator (WDI). World market capitalization data is collected from website indexmundi.com. Local and world market returns data is collected from Morgan Stanley Capital International (MSCI) indexes.

Internet user data was collected from international telecommunications Union year book statistics. Political risk and Regulation Quality data was collected from the World Governance Indicators Guide of International Country Risk (PRS). Financial Integration Data is collected from Dr. Hiro (Hiroyuki) Ito personal website.

4. Results

Foreign Diversification Results

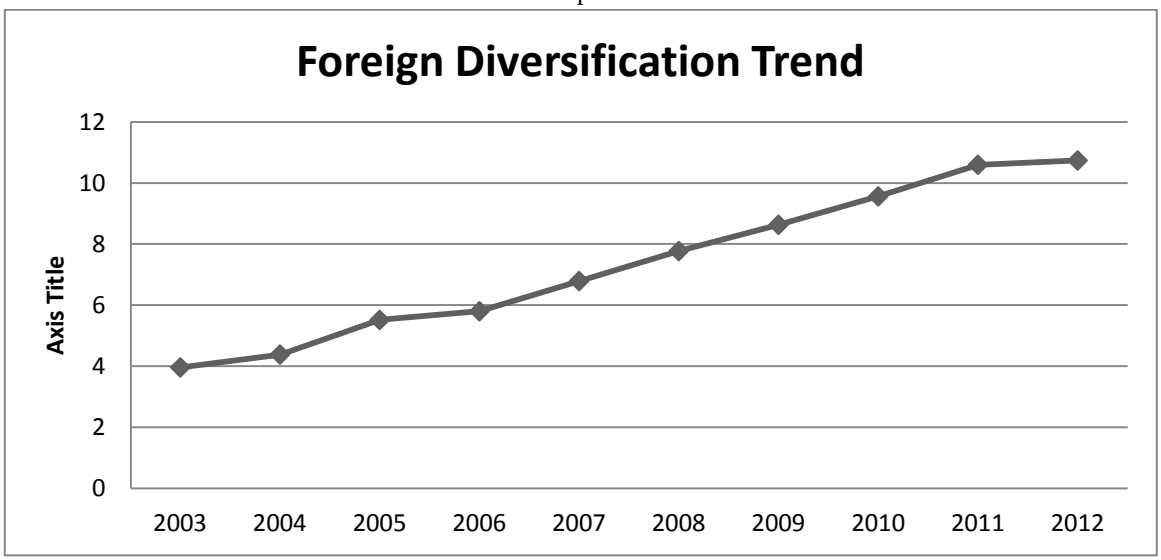
We have measured the foreign diversification of each country with the help of equation (1). The calculation of foreign diversification of 21 countries for the period 2003 to 2012 is shown in Table 1.

Table 1 Foreign Diversification

	Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1	Argentina	16.9	16.0	13.9	13.2	15.4	13.7	19.2	14.6	20.8	26.3
2	Brazil	1.4	0.9	0.7	0.7	0.6	1.0	1.0	1.2	1.8	1.4
3	Bulgaria	0.1	0.6	0.5	1.7	2.0	2.2	7.1	10.4	6.1	9.1
4	Chile	11.5	12.2	15.0	21.0	24.2	21.3	26.7	22.6	23.4	24.5
5	China	20.8	27.4	25.9	13.3	8.0	9.5	9.5	11.5	13.3	15.2
6	Colombia	5.3	2.3	2.2	2.8	2.3	1.9	3.4	2.9	3.7	2.9
7	Estonia	6.0	10.2	28.9	28.8	42.7	45.2	42.7	59.2	70.7	63.3
8	Hungary	3.3	6.3	9.4	18.2	22.0	34.3	36.7	39.7	36.8	33.8
9	India	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1
10	Indonesia	0.0	0.1	0.1	0.3	0.5	0.6	0.6	0.3	0.4	0.5
11	Malaysia	0.6	0.6	1.0	1.8	3.4	6.7	8.4	6.6	7.2	7.4
12	Mexico	0.5	2.2	1.9	2.2	1.3	1.1	0.7	0.5	0.7	0.3
13	Pakistan	0.4	0.4	0.8	0.5	0.5	0.5	0.3	0.3	0.4	0.4
14	Philippines	0.8	0.7	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0
15	Poland	0.7	1.2	2.1	4.0	6.3	5.4	6.0	6.1	5.9	6.0
16	Romania	0.2	0.3	0.9	1.9	2.2	4.0	2.0	2.5	4.9	8.1
17	Russia	0.0	0.1	0.1	0.1	0.3	0.8	0.3	0.5	0.8	0.7
18	South Africa	13.8	9.6	10.8	9.3	8.6	11.8	12.8	19.4	22.7	23.0
19	Thailand	0.4	0.7	1.0	1.6	2.2	2.7	3.3	2.1	2.7	2.3
20	Turkey	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1
21	Ukraine	0.3	0.2	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.1

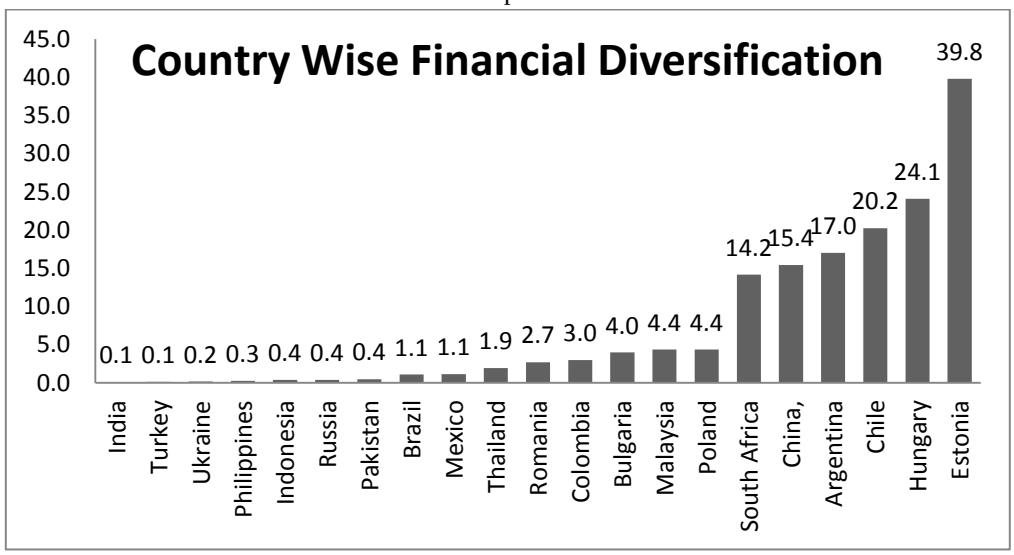
Table 1 indicated that almost all countries show increasing trend in foreign diversification. For the ease of analysis results of from 2003 to 2012 were averaged and plotted in Graph 1

Graph 1



Graph 1 shows the increasing trend in foreign diversifications of countries. However, this increase is still not significant enough to conclude that the home equity bias is eliminated. Country wise average results are plotted in Graph 2.

Graph 2



Results in graph 2 depicts that Estonia has highest foreign diversification percentage of 39.8% where as India has lowest percentage of 0.1%. Graph 2 further indicates only six countries South Africa, China, Argentina, Chile, Hungry and Estonia has more 10% portfolios internationally diversified.

While the other fifteen countries show below than 5% international diversification, it means that most of the countries invest locally and they are biased towards foreign equity.

Summary Statistics is given in table 2:

Table 2 Summary Statistic

Varaibles	Observations	Mean	Maximum	Minimum	Std. Dev.
FD	210	0.073762	0.707000	0.000000	0.119287
MWCAP	210	0.791567	10.56900	0.003000	1.528789
RDWLI	210	-354.3992	5780.030	-1503.889	1161.491
SIEGDP	210	40.10585	105.1869	11.05915	22.84205
INFO	210	28.30242	79.00000	1.686000	19.68365
SEMCAP	210	17.87881	21.25707	13.82118	2.557135
PI	210	0.692523	0.901515	0.405303	0.090295
RQ	210	0.709333	1.000000	0.270000	0.152015
FI	210	0.188269	2.439009	-1.863972	1.328095
ERV	210	-0.33071	47.91900	-28.233	8.856412

Summary statistics reflects raw data results. Variables are defined as under:

FD	Foreign Diversification
MWCAP	Market to World Capitalization
RDWLI	Local minus World returns
SIEGDP	Share of Export & Import in GDP
INFO	Information
SEMCAP	Share of Emerging markets in World Market Capitalization
PI	Political Instability
RQ	Regulation Quality
FI	Financial Integration
ERV	Exchange rate Variation

Table 2 shows the mean, minimum and maximum values and standard deviation of each variable. Mean value of Foreign Diversification is 0.073 which suggest overall low foreign diversification. Similarly negative mean values of Local to World market returns and Exchange rate volatility reflect

that local market return are lower than world market and there is high exchange rate volatility in countries.

4.1. Panel Data Results

We used panel data regression on 21 countries balanced data from 2003 to 2012 to identify which factors have important role in explaining foreign diversification.

We conducted Hausman test on balanced panel data to check whether to use fixed effect or Random effect model. Hausman test showed that cross-section results are insignificant and probability value is above level of 0.05. On basis of Hausman test results, we used random cross-section and random period. Results of Panel data analysis with random effect are given in table 3.

Table 3 Panel Data Analysis

RANDOM EFFECT PANEL REGRESSION RESULTS			
Variables	Coefficient	t-Statistic	Prob.
CONSTANT	-0.068365	-0.730950	0.4657
MWCAP	-0.024863	-5.118130	0.0000
RDWLI	-0.000135	-1.770596	0.0782
SIEGDP	0.001853	2.824955	0.0052
INFO	0.002032	4.110402	0.0001
SEMCAP	0.004105	1.791808	0.0747
PI	-0.008371	-0.103847	0.9174
RQ	-0.058024	-1.115428	0.2660
FI	-0.005747	-0.804351	0.4221
ERV	0.000372	0.831864	0.4065
R2 = 0.358			

Variables are defined as under:

FD	Foreign Diversification
MWCAP	Market to World Capitalization
RDWLI	Local minus World returns
SIEGDP	Share of Export & Import in GDP
INFO	Information

SEMCAP	Share of Emerging markets in World Market Capitalization
PI	Political Instability
RQ	Regulation Quality
FI	Financial Integration
ERV	Exchange rate Variation

In table 3, results of panel regression with random effect model suggest that three variables, local market capitalization share of world market capitalization (MWCAP), share of Import and Export in GDP (SIEGDP) and information (INFO) play an important role in foreign diversification as well as in investor decision making.

Local market capitalization share in world market capitalization (MWCAP) results indicates interesting facts. Since coefficient of MWCAP variable is negative, which indicates negative relationship between MWCAP and foreign diversification. It means higher the local market share of world market capitalization lower the foreign diversification. One possible explanation of this negative relationship could be derived from the fact that since investors of those countries having bigger share in world capitalization do not perceive additional benefit to international diversify because their country market is strong and major player in world market and therefore they prefer to invest locally which in turn reflect as home equity bias attitude of investors.

Share of Import and Export in GDP (SIEGDP) and information (INFO) has positive coefficients which indicate positive relationship with foreign diversification. Higher the information available to investor more they will invest internationally. Similarly, more trade friendly policies country applies more investors will be willing to invest internationally.

Results about trade openness are consistent with previous studies that it boosts the foreign diversification. Hence study's hypothesized reasons for increment in foreign diversification is supported and justified. Accordingly as long as an economy is open it will pave the way for foreign diversified investment and became an attractive feature for foreign investment.

Information factor is not a supporting icon for foreign diversification is affected by, hence became insignificant over here, acceptability of investment is not only possible due to information availability. These findings are consistent with Brannan and Cao (1997) and Ahearne , Griever and Warnock (2004) studies.

Negative values of coefficient of country political risk, difference of local and world market return, regulation quality and Financial Integration indicate that investors sensitivity towards perceived country political situation, rules and regulation, financial structure and return of country's market but there no linkage have been observed between these variables and foreign diversification

5. Conclusion

The aim of this study was to explore the potential influential factors that affect and modify investors' attitude towards foreign investment than investing domestically. While taking in account 21

developing counties for the period of 10 years we observed upward trend in foreign investment. But there still majority of sample countries have very low level of foreign diversification which indicated that investor still prefer to invest in their local equities which results home equity bias attitude.

To further analyze the potential influential factors behind the home bias attitude we applied panel data random effect model on nine variables, Market to World Capitalization, Local minus World returns, Share of Export & Import in GDP, Information, Share of Emerging markets in World Market Capitalization, Political Instability, Regulation Quality, Financial Integration and Exchange rate Variation.

On the basis of accumulated results we came with a conclusion that local market share in world capitalization, Information available to investors and trade openness are significant factors which influences the foreign diversification. Even though variables like Political factor, Regulation Quality, financial Integration and difference between local and world return do not display significant relationship with the foreign diversification but their negative coefficient value reflect investor's sensitivity towards these factors. This study is consistent with the study of Alam, Arshad and Shah (2012) with a difference and their suggested future research area of analyzing political instability (risk) effect is insignificant as per study's results. Conclusively this study summarizes home bias is diminishing and investor prefer to invest internationally.

Future research may incorporate time variation in trading hours on foreign investment and home biasness and try to find out its linkage with home investment.

References

Ahearne, A. G., Griever, W. L., & Warnock, F. E. (2004). Information costs and home bias: an analysis of US holdings of foreign equities. *Journal of International Economics*, *62*(2), 313–336.

Alam, A., Arshad, M. U., & Shah, S. Z. A. (2012) Home Equity Bias: The Downward Trend. *World Applied Science Journal*, 18(9) 1279-1284.

Amadi, A. A. (2004). Equity Home Bias: A Disappearing Phenomenon? *SSRN Electronic Journa*. *https://fdic.gov/bank/analytical/CFR/2005/feb/CFR_2005_Amir2.pdf*

Baele, P., C. Pungulescu, and J. T. Horst. (2007). Model Uncertainty, Financial Market Integration, and the Home Bias Puzzle *Journal of International Money and Finance 26: 606–630*

Bekaert, G. and X. Wang. 2009. Home Bias Revisted. Mimeo

Baxter, M., & Jermann, U. J. (1997). The international diversification puzzle is worse than you Think.*The American Economics Review, Vol.87, No.1, 170-180*

Baxter, M., Jermann, U. J., & King, R. G. (1998). Nontraded goods , nontraded factors , and international non-diversification, *Journal of International Economics 44, 211–229.*

Bellalah, M., & Sendi, I. (2010). The Equity Home Bias : Explanations and Financial Anomalies. *International Journal of Economics and Finance*, 78–96.

Benigno, P., & Nisticò, S. (2009). INTERNATIONAL PORTFOLIO ALLOCATION UNDER MODEL UNCERTAINTY. *NBER Working Paper Series www.nber.org/papers/w1473*

Bentabet, A., & Fetni, M. (2013). Information costs and its effects on international portfolio choice. *Issues in Business Management and Economics*, *1*(June), 37–46.

Bernnan, M. J., & Cao.H. H (1997). International Portfolio Investment Flows. *The Journal of Finance Volume 52, Issue 5, pages 1851–1880*

Black .F, (1974) International capital market equilibrium with investment barriers *Journal of Financial Economics Volume 1, Issue 4, Pages 337–352*

Bordo, M. D., Eichengreen, B., & Irwin, D. A. (1999). Is Globalization Today Really Different Than Globalization a Hundred Years Ago?, *National Bureau of Economic Research: Cambridge, MA, NBER Working Paper 7195 (Prepared for the Brookings Trade Policy Forum on. "Governing in a Global Economy," Washington, D.C*

Boyle, P., Uppal, R., & Wang, T. (2003). Ambiguity Aversion and the Puzzle of Own-Company Stock in Pension Plans, *Institute of Finance and Accounting, London working paper ; 390*

Chinn, Menzie D. and Hiro Ito (2006).What Matters for Financial Development? Capital Controls, Institutions, and Interactions," *Journal of Development Economics, Volume 81, Issue 1, Pages 163-192 (October)*

Christelis, D., Jappeli, T., & Padula, M. (2007). Cognitive Abilities and Portfolio Choice, *European Economic Review Volume 54, Issue 1, January 2010, Pages 18–38.*

Coeurdacier, N., & Gourinchas, P. (2013). When Bonds Matter : Home Bias in Goods and Assets. *NBER Working Paper No. 17560 http://www.nber.org/papers/w17560*

Coeurdacier, N., & Rey, H. (2011). Home Bias in Open Economy Financial Macroeconomics *NBER Working Paper No. 17691 . http://www.nber.org/papers/w17691*

Cooper, I., & Kaplanis, E. (1994). Home Bias in Equity Portfolios , Inflation Hedging , and International Capital Market Equilibrium. *The Review of Financial Studies, 7*(1), 45–60.

Coval, J. D. (2000). International Capital Flows When Investors have Local Information, *Harvard Business School Working Paper, No. 04-026*

Coval, J. D., & Moskowitz, T. J. (1999). Home Bias at Home : Local Equity Preference in Domestic Portfolios, *The Journal Of Finance • Vol. Liv, No. 6*, 2045–2073.

Evans, M. D. D., & Lyons, R. K. (2004). A New Micro Model Of Exchange Rate Dynamics. *NBER Working Paper No. 10379 http://www.nber.org/papers/w10379*

Foad, H. S. (2012). Equity Home Bias and the Euro, *Social Science Research Network working paper http://ssrn.com/abstract=959270*

Frankel, J. A. (1993). The Internationalization of Equity Markets. *National Bureau of Economic Research Working paper 4590*

French, K. R., & Poterba, J. M. (1990). Japanese and U.S cross-border common stock investments. *Journal of the Japanese and International Economics 4, 476-493*

French, K. R., & Poterba, J. M. (1991). Investor diversification and international equity markets. *National Bureau of Economic Research Working paper 3609*

Griffin, J. M., & Karolyi, G. A. (1998). Another look at the role of the industrial structure of markets for international diversification strategies, *Journal of Financial Economics 50 351-373.*

Halova, M. W. (2011). Multinational Production , Optimal Portfolios and Home Equity Bias, *Journal of Boston College, 1–35*.

Hatchondo, J. C. (2005). Asymmetric Information and the Lack of International Portfolio Diversification. *International Economic Review, volume (49), number (4), (1297—1330)*

Hau, H. (2000). Location Matters : An Examination Of Trading Profits. *Journal of Finance. Volume 56, Issue 5, pages 1959–1983*

Jeske, K. (2001). Equity Home Bias: Can Information Cost Explain the Puzzle? *Federal Reserve Bank of Atlanta ECONOMIC REVIEW Third Quarter 2001 (pp. 31–42).*

Jochem, A. and U. Volz. 2011. Portfolio Holdings in the Euro Area—Home Bias and the Role of International, Domestic and Sector-Specific Factors. *Deutsche Bundesbank Discussion Paper Series No. 07/2011. Frankfurt: Deutsche Bundesbank.*

Kang, J.-K., Kim, Y.-C., Park, K.-J., & Stulz, R. (1995). An Analysis of wealth effects of Japanese Offshore Dollar-Denominated Convertible and Warrant Bond Issues. *Journak of Financial And Quantitative Analysis Vol. 30, No.2*

Kang, J.-K., & Stulz, R. M. (1997). Why Is There a Home Bias An Analysis of Foreign Portfolio Equity Ownership in Japan. *Journal of Financial Economics 46 (1997) 3-28*

Karlsson, A., & Nordén, L. (2007). Home sweet home: Home bias and international diversification among individual investors. *Journal of Banking & Finance, 31*(2), 317–333.

Lane, P. R., & Milesi-ferretti, G. M. (2003). International Financial Integration, *IMF Staff Papers Vol. 50, Special Issue*

Lewis, K. K. (2007). Trying to Explain Home Bias in Equities and Consumption, Journal of Economic Literature Vol. *37*(2), pp.571–608.

Michaelides, A. G. (2005). International Portfolio Choice , Liquidity Constraints and the Home Equity Bias Puzzle *Journal of economic dynamics and control, 28 (3). pp. 555-594*

Mondria, J. and T. Wu. 2010. The Puzzling Evolution of Home Bias, Information Processing, and Financial Openness. *Journal of Economic Dynamics and Control. 34: 875-896*.

Nieuwerburgh, S. Van, & Veldkamp, L. (2007). Information Immobility And The Home Bias Puzzle. *NBER Working Paper 13366 http://www.nber.org/papers/w13366*

Obstfeld, M., & Rogoff, K. (2001). The Six Major Puzzles in International Macroeconomics: Is There a Common Cause*? NBER Macroeconomics Annual 2000, Volume 15, pp. 339–412*.

Solnik, B. H. (1974) An equilibrium model of the international capital market, *Journal of economic theory, vol (8), no.(4), pp: (500—524)*

Sørensen, B., Y.T. Wu, O. Yosha, and Y. Zhu. 2007. Home Bias and International Risk Sharing: Twin Puzzles Separated at Birth. *Journal of International Money and Finance. 26: 587–605*

Stulz, R.M. (1981). On the effects of barriers to international investment. *Journal of Finance VOL XXXVI No.4.*

Stulz, R., & Wasserfallen, W. (1995). Foreign Equity Investment Restrictions and Shareholder Wealth Maximization Theory and Evidence. *The Review of Financial Studies*.Vol.8 No.4 pp: (1019-1057)

Tesar, L. L., & Werner, I. M. (1995) Home bias and high turnover, *Journal of International Money and Finance*, *14*(4), 467–492

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Publication Trends and Methodological Advancements in the Area of Agency Cost

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Abstract:

The paper presents a systematic literature review of the Research done in the last 30 years in the area of Agency Cost. It undertakes content analysis technique for the purpose and does a complete publication and methodological analysis to discuss the path the research is following. Simple counts and cross tabs are run to look at the advancements in the publication and methodology of the research over the years and in the four different regions of the world where this research is taking place. The results help us determine where and how most of the research in the world is taking place, as in what are its characteristics. The implication of this would be to use the characteristics to do further research in the area of Agency Cost. Also, this research would help in identifying the gaps in the methodology used to research for Agency Cost creating room for further research.

Keywords: Agency Cost, Publication Trends, Cost implication

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1. Introduction

After one decade of entering into the 21st century the importance of academic research is forever on an increase internationally as well in developing nations. Research is now being encouraged in every field whether it is the social sciences or pure sciences.

This paper attempts to study the type of research being done in the area of Agency Cost. It takes into account the different methodologies used to study this problem, considering how these methodologies changed over the years and how researches are done in different areas of the world differ in their use of methodology.

This research also attempts to look at the publication trends of the research being done in the area of Agency Cost. It helps us to identify which regions of the world are publishing more research by academicians and which regions are encouraging researches from practitioners. Also, it helps us identify how author collaboration is changing over the years in different parts of the world. Another important aspect studied in this research is the analysis of the disciplines in which the research in Agency cost is mostly taking place. An analysis based on the ratings of the Journals is also done where the research on Agency Cost is published, studying the changes over the years and in different regions of the world.

Generally in publications we do not find a lot of systematic literature reviews in our area of "Agency Cost". The type of qualitative research, that is present in this area, other than the explanation of the theory, is whether this theory should be taught to students or not by discussing its pros and cons as done by Cohen and Webb (2006) and Heath (2009). Mcdonald (1984) did try to incorporate the direction that the theory of agency cost was going to take, but did not do any empirical testing to base his ideas on. Quantitative researches, on the other hand are numerous, but all are testing the theories of agency cost.

Though this technique of a systematic literature review is being used for other topics in finance, such as in sustainability reports by Borkoski et al. (2012) and of journals such as Financial Services Review by Hanna et al. (2011), it is still missing in the area of Agency Cost, or related theories. This could be probably because a lot of literature research was not encouraged previously. As explained by Sutton (1997) a lot of qualitative research was to be part of "closet research" and was not explained in papers as the journals did not encourage publications of articles that had a lot of qualitative research in them. But the importance of qualitative research exists forever as quantitative research can only be built upon the proper qualitative basis as explained by Sutton and Staw (1995). Thus, considering qualitative research as a building block for further research, this paper moves on a systematic review of the publication trends of the work done in the area of Agency Cost and for this purpose the technique of content analysis is used, which combines the qualitative research with quantitative research.

The main research questions that this paper tries to answer are:

1. What are the Publication Trends of journal articles such as authorship and discipline over the years and regions of the authors?

2. What are the Methodological trends in the region of author over time?

3. What are the trends in the journals being rated highly and the region where the articles are researched?

2. Background of Theory of Agency Cost

Agency Problem is a conflict of interest between two parties. The concept of agency cost was first introduced by Jensen and Meckling (1976). They explained it through the effort required to try and increase the value of the firm. The increased value would benefit the shareholders while the managers might want to replace the effort by their own leisure or over-indulgence in company perquisites. Jensen and Smith (1985) identified three possible areas of conflict between the management and the shareholders. The first area is the effort required by the management to increase the value of the firm. Secondly, risky investments would probably increase the returns for shareholders, as high risks lead to high returns, while the risk for them is minimized because of their diverse portfolio of investments. On the other hand, the risk would be maximized for the managers as they are associated with that firm only and the risk of the firm is directly related to them and so they would not want to take on such a risky investment (Fama, 1980). Even this is directly going to reduce the value of the firm which will not be good for the shareholders. Thirdly, since the managers are part of the firm for a shorter time period than the shareholders they would be interested in investments that would benefit the firm in the near future only and this might not be in the best interest of the shareholders (Furubotn and Pejovich, 1973; Jensen and Meckling, 1979). Thus, if managers engage in self-interested behavior, the firm is not going to perform at its optimal level and this will be against the interests of the shareholders and so the problem of agency is going to arise.

Agency costs most commonly exists in corporations in which owners are separate from management, but with time the agency theory is also being applied in a number of other cases as well where principal – agent exists and there might be a conflict in their interests for example in sports as researched by Atkinson et al. (1988) and McClure and Spector (1997) or drug prescriptions by physicians as explained by Iizuka (2007) . It can also exist in real estate business as explained by Graff and Web(1997) and also in politics as shown by McGuire and Ohsfeldt (1989), Jensen (2005), Gailmard et al. (2009) and Leaver(2009).

Thus, this paper will move on to consider all such research in which the agency theory is being applied in any scenario.

3. Methodology

Content Analysis is a literature review tool that is becoming quite popular because of its contribution to literature. Botha et al (2011) explain its advantages as "*First, it can act as a guide to potential authors with regards to changes in content, methodology and article length that can help direct their future publications. Second, the study of historical trends reveals new opportunities for the journals that have hitherto remained unexplored."* (p.g. 89)

Content Analysis is being used in a lot of areas other than finance. Brereton et al. (2006) introduced the systematic literature reviews in the domain of software engineering and confirmed them to be as

important to that field as the literature reviews in medicine would be to theirs. A lot of similar research is being done in the field of management and marketing, such as Gerhard et al. (2011). Even in education department Wu et al. (2010) have undertaken such research. Similarly, a systematic literature review should be as helpful in Finance and Accounting with the progressing developments in this field. Bisman (2010) stressed on the "postitivist philosophy of critical realism" in which he explained the role of critical realism in research in accounting as a link between qualitative and quantitative research.

3.1. Selection of Article / Sample

The database selected for this research is EBSCOHOST, and within it, The Business Source Premier is taken. "Agency Costs" was the term used to search for all the published articles. The criteria given was that the articles should be academic articles published in journals. Also the time frame was set from 1980 till date. This was because the concept of agency cost was first introduced in 1976, so the substantial research that would be done in the area would start after two to three years. Thus, the decades in this analysis starts from 1980s. Also, only full text articles were selected so that they should be completely available for an in-depth analysis.

The search resulted in 341 articles. These articles were shifted to Refworks, a software used for reference management, which converted these articles in a complete bibliography list in excel. The list consisted of all the details of the articles such as their title, author, abstract, publication etc.

3.2. Coding

Then a complete coding of the articles took place. The first step of the coding was to code the article as relevant or not. Since the topic was a broad one and the search was done in the abstract and title only, most of the articles were relevant. Any article that discussed the problem of Agency costs or existence of agency costs were considered to be relevant. Articles that were considered to be irrelevant were the ones that discussed different costs or optimal costs related to different companies or agencies. Thus, out of 341, 315 articles were found to be relevant.

The second step was to code the articles as being conceptual or empirical and then being qualitative or quantitative based on the criteria given by Minor et al (1993) and Dangayach and Deshmukh (2001) in the area of Manufacturing Strategies. Conceptual studies are studies based on secondary data or working with research already done or theory already built Empirical studies on the other hand used primary data or interprets or derives certain results.

Creswell (1994) explained quantitative research to be dealing with variables, numbers or statistical analysis while qualitative research was explained by understanding of something existing through words, theory etc.

Thus, the research started with four main types of articles as explained by Nakata and Huang (2005) and Page and Schirr (2008) Conceptual Qualitative and Conceptual Quantitative, Empirical Qualitative and Empirical Quantitative.

3.3. Final Sample

The coding of 315 articles resulted in the following:

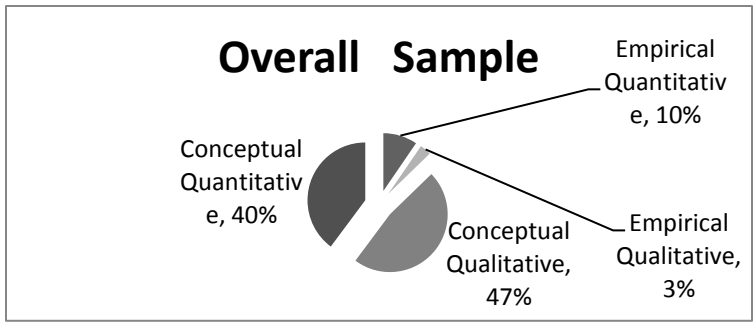

Figure 1: Type of Article

Conceptual Qualitative articles are not considered in this research as they do not have empirical methodology. The most important segment after that (40%) are those of Conceptual Quantitative articles and thus this research further moves on to analyze these articles. In marketing research, more emphasis is on primary data and thus more empirical papers exist. In finance since a lot of numbers are involved and they come in through secondary sources a greater number of conceptual research exists. Empirical qualitative and empirical quantitative papers are not being considered because their weight age is very low in the overall sample and their methodologies are completely different from that of conceptual papers so the empirical papers cannot be compared with the conceptual papers.

4. Publication Trends

The main aim of this paper is to analyze the research being done in the area of agency cost, and so the first part of the analysis is to study the trends in the publications of the research being done. All the aspects being analyzed are being considered over the years and the regions of publications. For this purpose crosstabs are run under each aspect being considered. The time is taken as the publication year of the research paper. It is divided into three decades, 1980s, 1990s and 2000s are till date.

The region is the area that the author is based in. As there are some collaborations between authors, the analysis will also be covering the two major regions of collaboration, as discussed below. The region of the authors are primarily being divided into United States of America (USA), Europe, Asia and Others. Adhikari et al. (2002) in their article divided the regions between US and Non US, but in this research as Europe, which includes United Kingdom, and Asia also had an important amount of research being done, were treated as separate regions. The category of others included some work being done in Australia and Canada. The two main collaborations that were found to take place were between USA and Europe and Asia and USA. The need for collaboration came in to bring in the impact of the articles that had authorship collaboration between different countries. Figure 2. shows that that almost 82% of the articles are single authored while only 16% are multiple authored (the remaining 2% data was not available).

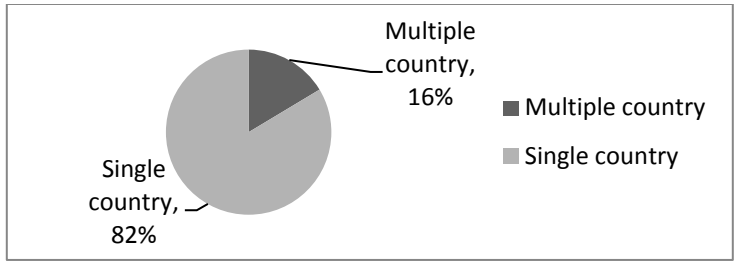

Figure 2: Authorship Collaboration

Percentages for all parts are calculated out of the total research done in that time period and/or in that region.

Figure 3 shows the total counts of the publications in each geographical area over the years. It can be seen clearly that the research in Asia is gaining strength, especially in 2000s. It is also more than the work being done in Asia with the collaboration of the USA. If we look at the details of Asia alone, we find that the major chunk of work being done within Asia is in Korea and Japan with some research being done in China, Indonesia, Malysia and India. A very interesting conclusion can be derived from this graph that in the area of agency cost some work was being done in the 1980s in Asia but nothing was published in Europe during that time.

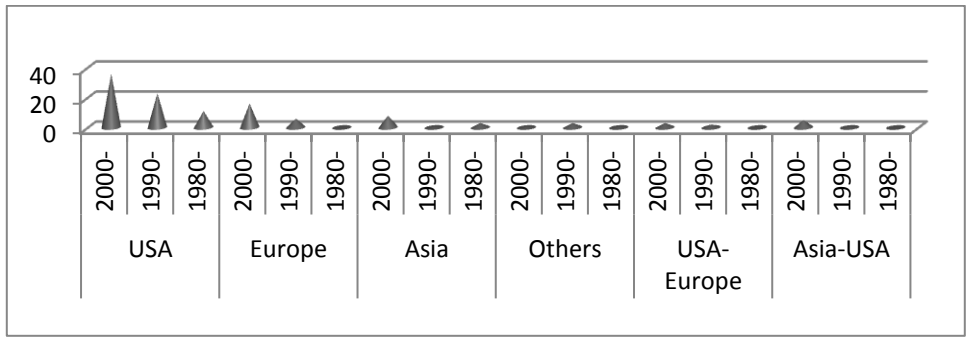

Figure 3: Total Studies done region wise over the years

4.1. Authorship

Authorship can be analyzed from two different aspects. The first is the type of authors. Whether the authors belong to the academic fields are they practitioners or is there a collaboration between the two. The second is the number of authors of a paper according to work being done in different regions over the years.

Figure 4 helps us analyze the type of authors. We can see that it is mostly the academicians who are working more in this area in all regions. The practitioners are working independently or in collaboration more in the USA. The reason for this could be because firstly we are considering academic research published in academic journals only so the contribution by the practitioners might be less. Another reason is that almost all the practitioners belonged to the World Bank or companies existing in America making it easier for them to contribute to the journals in USA.

An Interesting finding is that in 2000s the trend of collaboration between the academicians and practitioners is almost nil in USA, even though it was around 5% in 1980s and 1990s, but practitioners in USA are contributing through collaboration with Asian writers in 2000s. this could probably be because as it was seen previously, major part of research is being done by academicians is in Asia while majority of practitioners are from USA, thus their collaboration is created.

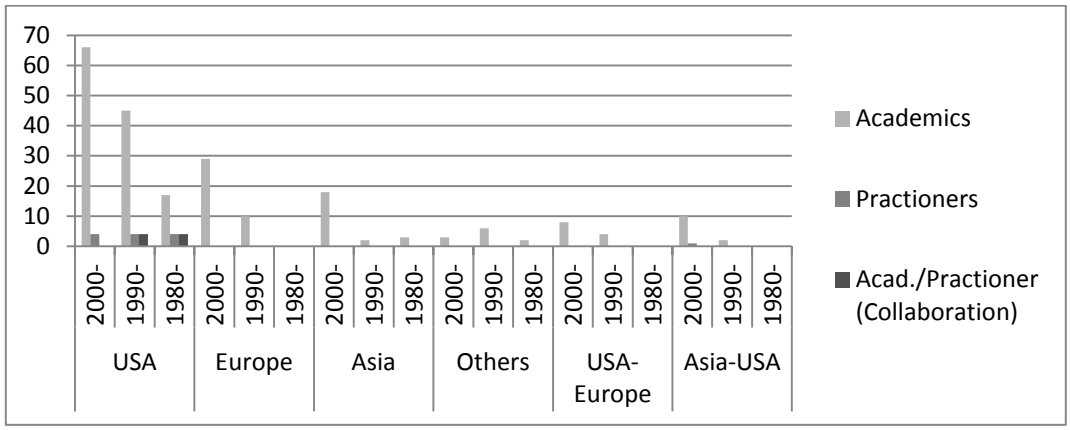

Figure 4: Authorship Type region wise over the years.

Figure 5 explains the trend of the number of authors over the years in different regions. The percentage represents the amount out of the total work done in that region during the time. In the 1990s, almost all the research being done in Asia was single authored which shifted in 2000s to two and three authors as well. Very interestingly, in USA single authored research is the lowest in all years (and two authors highest) while in Europe the single authored research is the highest in 1990s and 2000s. In other countries the trend has shifted from 100% single authored research to 100% three authored research. The reason for the increasing number of authors could be to try and bring in more specialized people (in their fields) together in a research to make it more versatile.

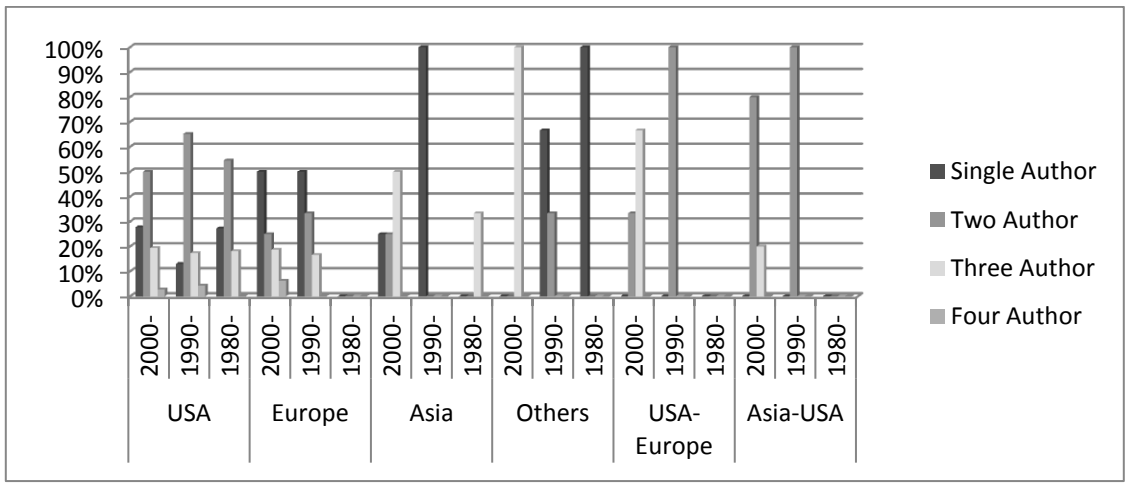

Figure 5: Number of Authors region wise over the years

4.2. Journals

Analysis on the research being published is also done on the basis of the type of journals this research is published in. For this purpose the journals are divided upon the basis of their ratings. These ratings are made on the basis of Anne Wil Harzing's complied list. From the list the rating by Australian Business Deans Council (ABCD 2012) is considered. This lists divides the journals in four categories A*, A, B C.

Figure 6 helps us analyze the trend of publications in different journals. A very interesting finding of this part is that a major percentage of articles published by Asian authors are in the top tier (A*) journals in the 2000s (around 40%) against contrary believe that it is very difficult for Asians(Koreans, Japanese, Chinese etc) to get their research published in good journals. This is also a complete shift from 1990s when 100% research was being published in C rated Journals. Interestingly in USA, the trend shifted from A* journals, as in 2000s a lesser amount of articles are being published in those journals (from 50% to almost 30%) and publication in A category journals increasing. A* journals preferred most articles from a collaboration of Asian and American writers in 1990s and 2000s. For authors from Europe, A class journals were the highest publishers in 2000s and 1990s.

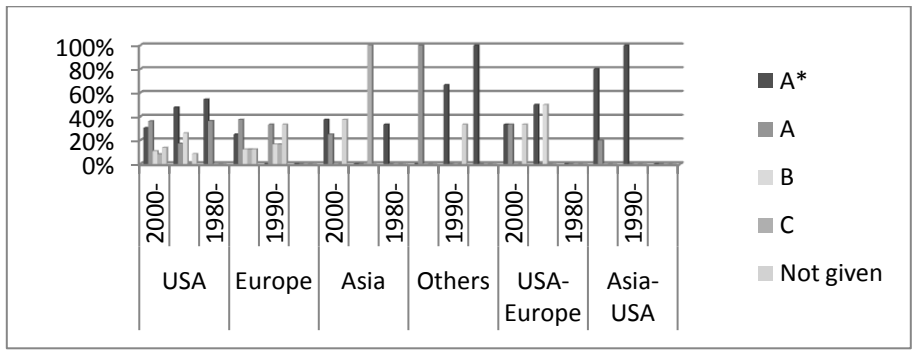

Figure 6: Journal Ratings for publications region wise over the years

4.3. Discipline

Another important area for analysis is the disciple in which Agency cost is studied most. As explained earlier, it exists mostly in corporations so the area of research should be Finance or accounting. But, as explained previously, the theory of Agency Cost is also being applied in a number of other real life scenarios. Thus, studying the discipline of research would enable us to learn about its application in other disciplines.

Figure 7 helps the analyses of the discipline in which the concept of Agency Cost is studied the most. As hypothesized, Agency Cost does belong to the area of Finance & Accounting but surprisingly, it is also being applied to the area of Economics. In Asia, all the research done in 1990s in agency cost was in the discipline of Economics. Even in 2000s, it is mostly in Economics but is gaining strength in the discipline of marketing as the area of marketing is also developing. In the developed nations, like USA and Europe, the theory is also moving in other disciplines such as General and Strategy and Entrepreneurship. Thus, it is not a topic of Finance and Accounting alone anymore.

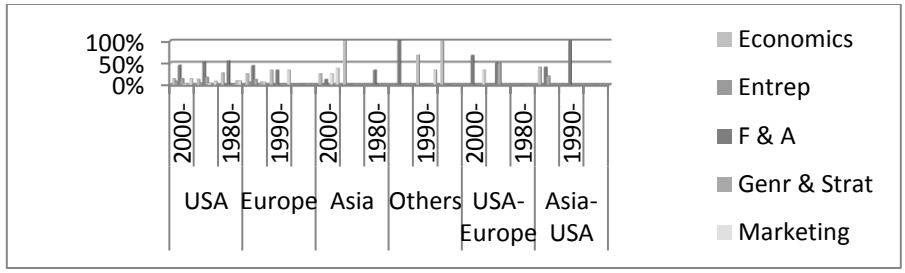

Figure 7: Disciple of Journal of publication Region wise over the years

5. Methodological Advancements

Another important analysis to be done in this research paper is to study the advances in different methodologies used in the research being done in the area of Agency Cost. For this purpose the researcher will be looking at two aspects simultaneously, where required. One will be the different methods used in the last three decades and the other will again be the trend in methodological advancements over time in different regions. For this section the collaborations of the authors have not been separated but are part of the total research being done in each region.

5.1. Research Design

The most common method of research used worldwide is modeling (as shown in figure 8) and it has been so over the years, followed by simple statistical techniques.

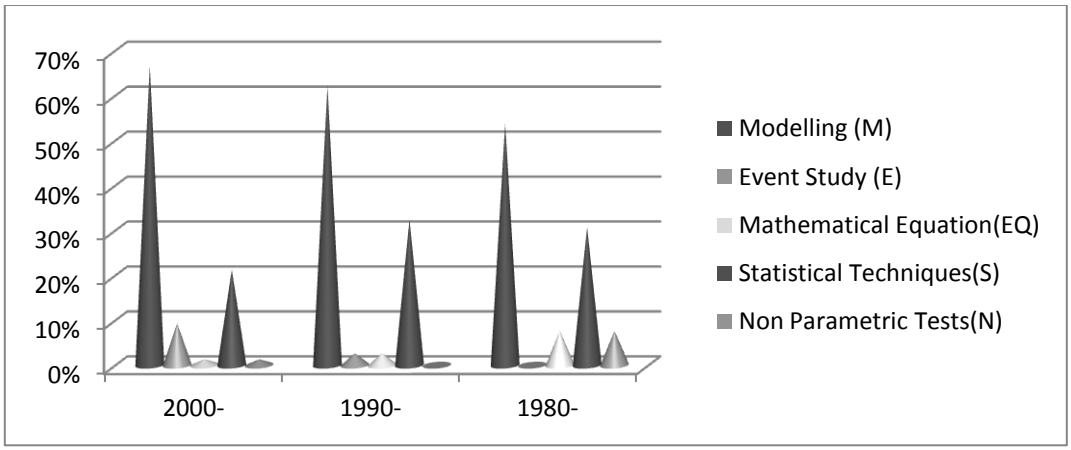

Figure 8: Research Design over the years

In the modeling methodology, a model is estimated and then it is run on the data collected to be tested. This research has identified a number of other research designs and their increased trend of usage. Some papers were found to use the event study research design while some were found to be estimating Mathematical equations. Usage of Event studies has increased a bit in 2000s while that of Mathematical Equations is found to be diminishing over the years. Some papers were also found to be using only simple statistics to prove their point, but their usage has decreased in the 21st century. There were also some nonparametric tests used in 1980s but their use is almost finishing now.

The analysis in this paper (figure 9) shows that all the research being done in Asia in 1980s and 1990s was using the modeling design. In 2000s, the event study design is being used with a high percentage and also statistical techniques to some extent.

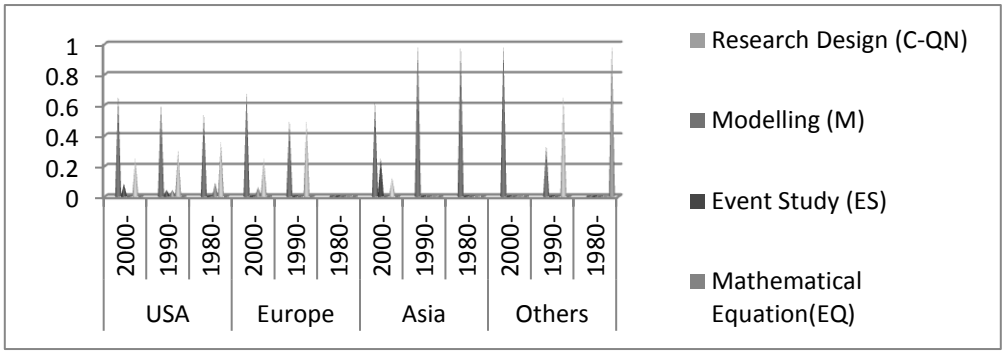

Figure 9: Research Design Region wise over the years

5.1.1. Type of Statistical Techniques and the Number of their Usage

As the research design is discussed, another important part of the methodology that goes with it is the statistical technique used. A number of statistical techniques were identified. Regression alone was divided into different types of regressions. If nothing was mentioned it was treated as a normal regression. There is a basic Ordinary Least Square Regression (OLS) and the more advanced Logistic and Probit Regressions. From figure 10. It can be seen that as the trend of using the modeling research design is decreasing over the years so does the use of regression techniques. Very surprisingly, it can be seen that papers in 1980s identified the regression to be OLS regression, while with time they stopped identifying it and so the unidentified regression graph went up.

Another important finding within this methodology is that with time the number of statistical techniques is also increasing (Figure 11). In 1980s more research was based on single tests. In this decade a lot of research has shifted to use of two and even three tests. Obviously, as all areas are becoming more advanced with time, statistical techniques are also advancing and so does their use. Also the greater the number of techniques used, the more reliable the results would be. This is something happening worldwide. In Asia, there is still use of two techniques as compared to USA and Europe where trend has shifted to using three techniques.

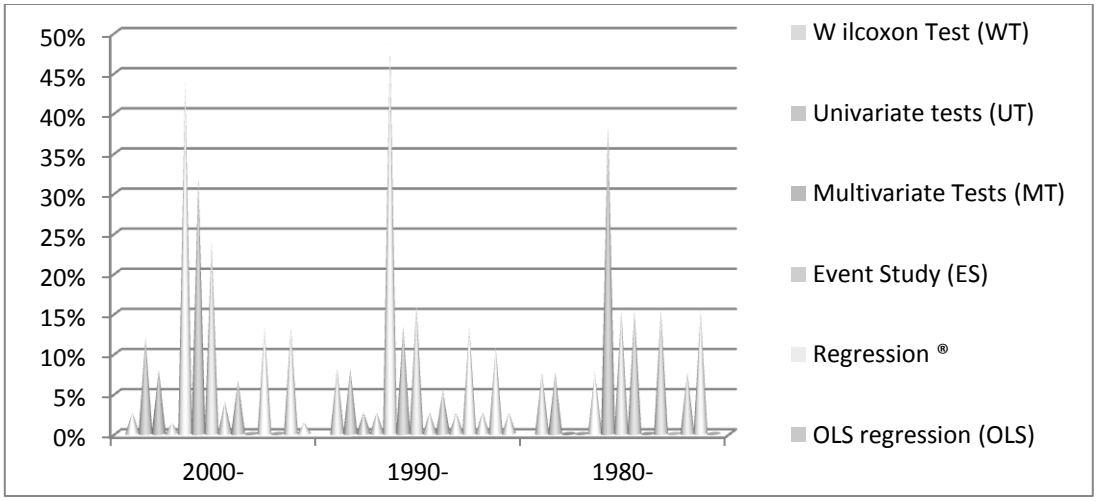

Figure 10: Statistical Techniques over the years

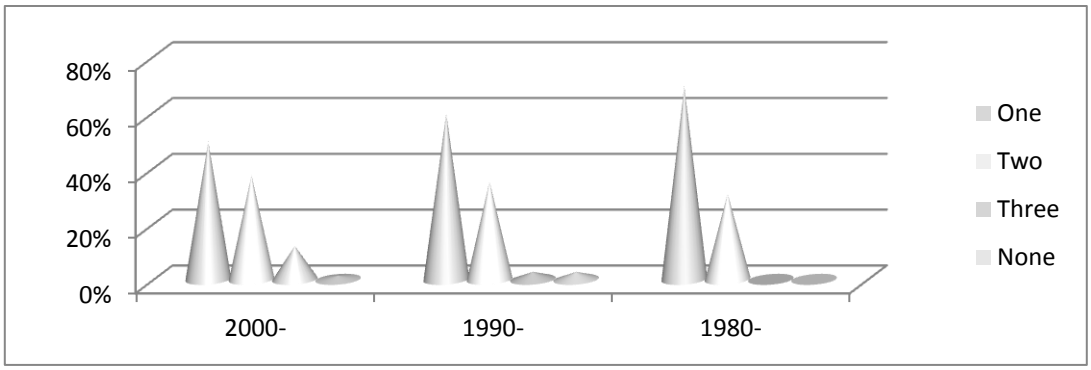

Figure 11a: Number of Statistical Techniques overall over the years and region wise over the years

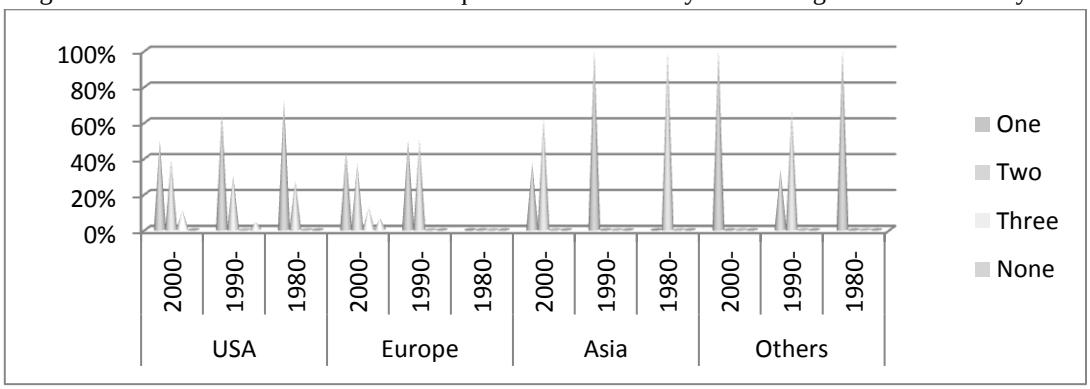

Figure 11b: Number of Statistical Techniques overall over the years and region wise over the years

5.2. Unit of Analysis

As explained in the background, Agency cost is most commonly found in corporations. Thus the unit of analysis for research has over the years mainly been Firms. Almost 80% of research in 2000 were done on firms. Since the characteristic of Financial and Nonfinancial firms are different, they were coded as different units of analysis. As seen from figure 12, the nonfinancial firms are the main unit of analysis over the years. Interestingly, all agency theories were tested in "other" cases more in the 1980s. Others include the field of sports, medicine, real estate and politics. These should have been

the areas to be explored as time progressed, but the analysis shows that they had been explored previously and now research in them is being done. Financial Firms were explored in 1990s for Agency Cost but now they are being ignored.

Asian research did take into account the agency cost related to the money market in the 1990s, but in the 2000s, even in this area the research shifted to analyzing the non financial firms more.

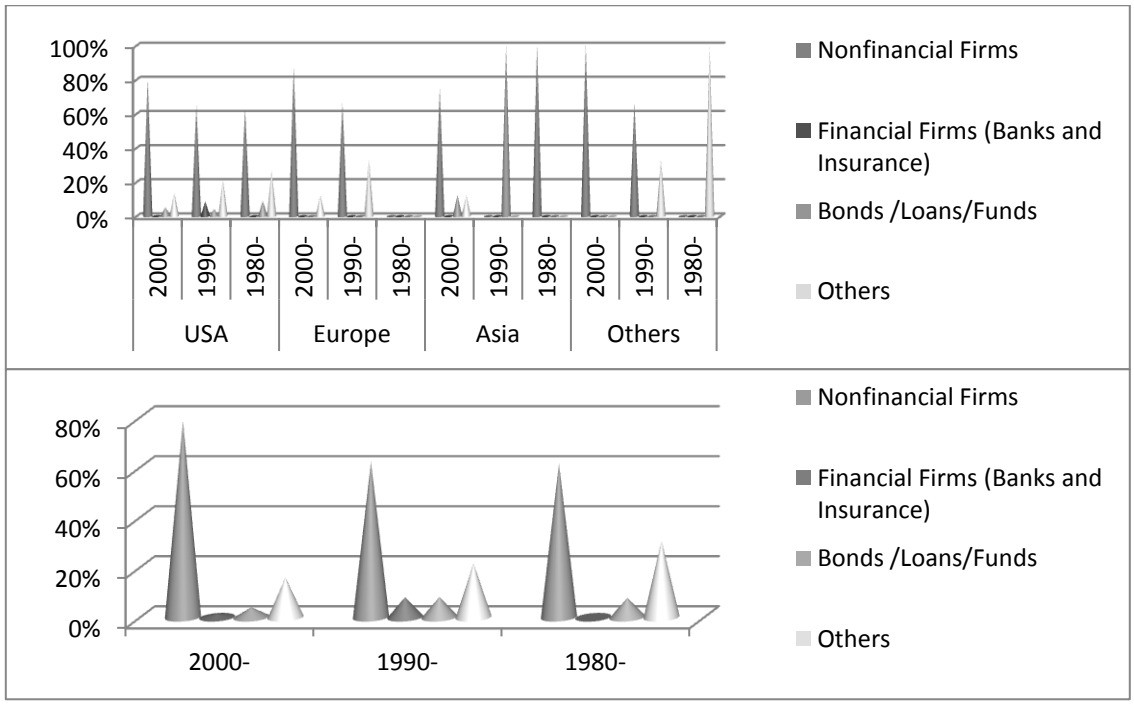

Figure 12a and 12b: Unit of Analysis overall over the years and region wise over the years

5.3. Type of Data Sources

Since the research that is being analyzed is all conceptual, the data sources would all be for secondary data. The data sources for this research are divided into data collected from organized databases that are created by different organizations as well as publications by certain departments or research centers. Some of the data was collected from surveys that took place by other sources than the researchers. Also in some cases, government documents or files organized by other agencies, were used. It can be seen (figure 13) that in 1980s publications by some departments were the main source of data. In a very few cases, financial statements by the companies were also used to collect data.

With time though, as more databases are being created and maintained, databases are becoming a common source for secondary data. When the trend is studied regionwise, it can be seen that in USA and Europe, publications are still a greater source of data but in Asia and other countries databases are gaining strength.

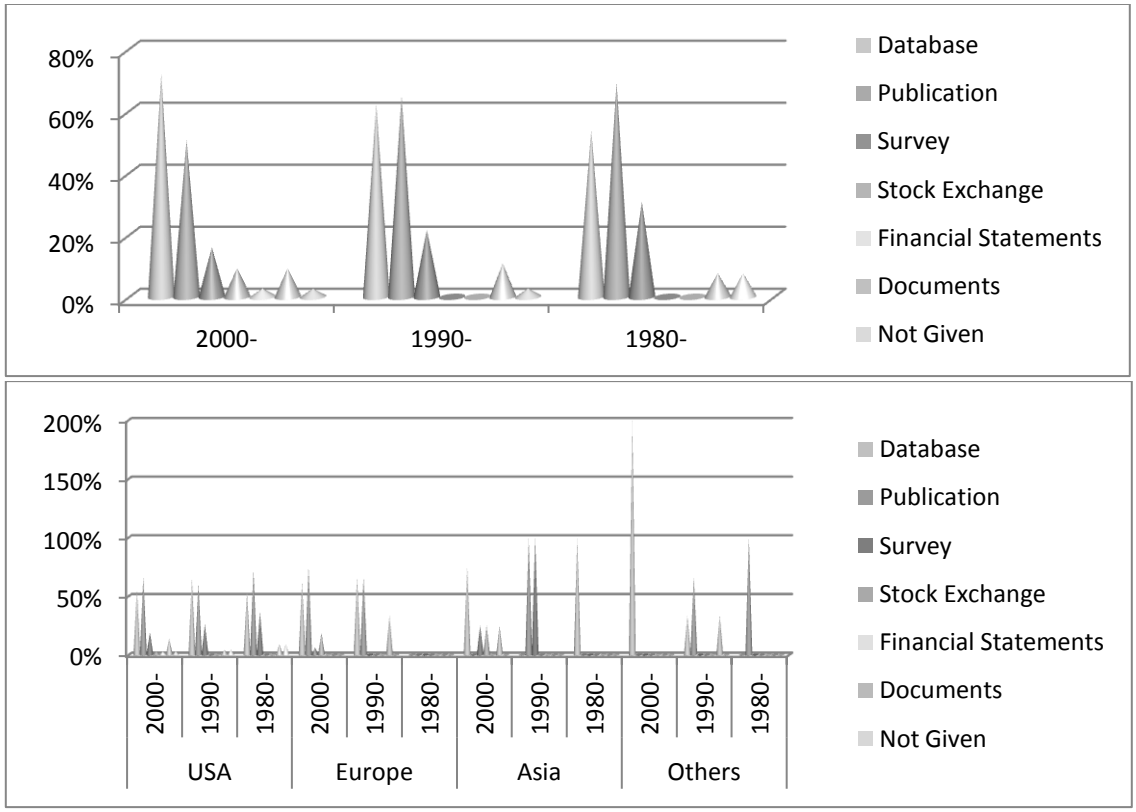

Figure 13a and 13b: Type of Data Sources overall over the years and region wise over the years

The percentage of data sources exceeds 100% as more than one data source is also used. In most cases the number of data sources used were just one but in some cases other sources are also used to confirm the data or file in the missing data.

5.4. Time Series

A very important characteristic of the data in any research is whether the data is longitudinal or cross sectional. It will depend on the type of research design and statistical technique to be used for the analysis. Longitudinal data will be data taken for a set of variables over a number of time periods, with each variable measured for each time period. If a number of variables are measured in one time period, then it will be categorized as cross sectional. Pooled data is a combination of both but is coded so only if the research mentions it. Similarly panel data is a set of variables in different time periods coded only if the research mentions it.

Over the years, it can be seen that the trend is shifting from cross-sectional to longitudinal data. One of the reasons for this could be that as time progresses more longitudinal data is available. Secondly longitudinal data gives better results than cross sectional data for most of the statistical techniques. Yet if the analysis is done region wise, it can be seen that in USA and Europe both cross sectional and longitudinal are preferred, while in Asia the trend has slightly shifted from longitudinal to cross sectional from the 1990s to 2000s.

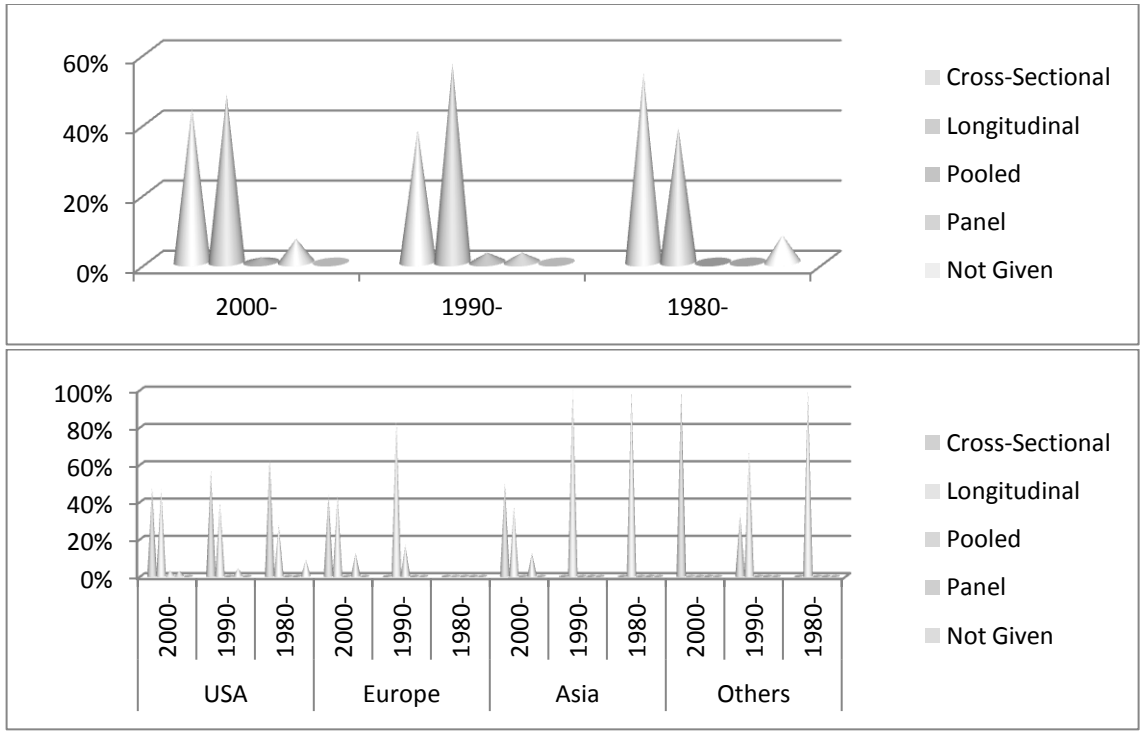

Figure 14a and 14b: Time Series of Data overall over the years and region wise over the years

5.5. Sample – Time Frame and Region

5.5.1. Time Frame of the Sample

Timely research is always preferred. The more recent the data used in research, the better the research will be considered. Yet, surprisingly, it can be seen (Figure 15) that only about 25% of the research done in 2000s is on data during that or immediately before that time frame. Rest of the research is divided between data of a decade or more before the actual publication. A possible reason for this could be the time lag between the research done and the publication of the research taking place.

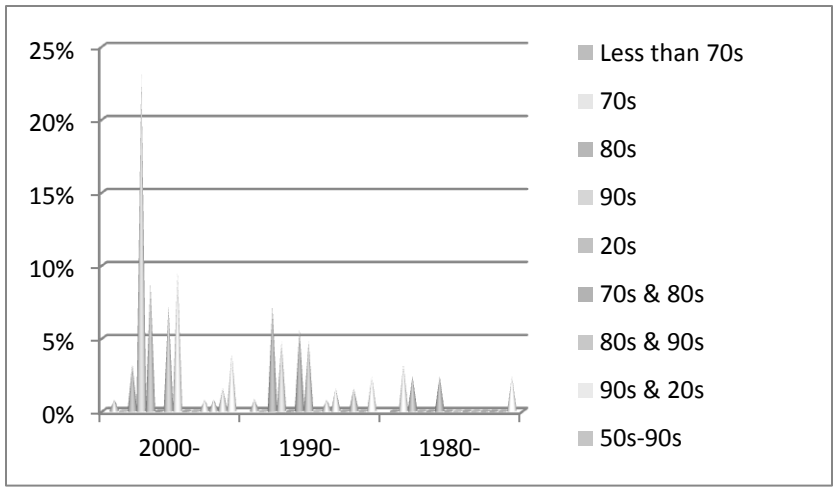

Figure 15: Time Frame of the Sample size over the years

5.2.2. Region of Sample Used

Data for the region in which the research is being done should be more easily available. So it is more convenient to do research on the data of where the research is being done. Also, the research is going to be of more value in the region where it is being done if it is tested in the scenario of that region. It can be seen in figure 16 that all regions are more or less doing major research on the data of the region where the research takes place. It is only in "Others"(Australia and Canada) that major chunk of research in 2000s is on the UK's data. In Asia in 1980s, almost all the research done was on USA's data, but the trend has shifted in 2000s as they move to their own data. The probable reason for this could probably be that in the 80s their own data was not developed or available as USAs data is more organized, but with time Asian data is also becoming accessible.

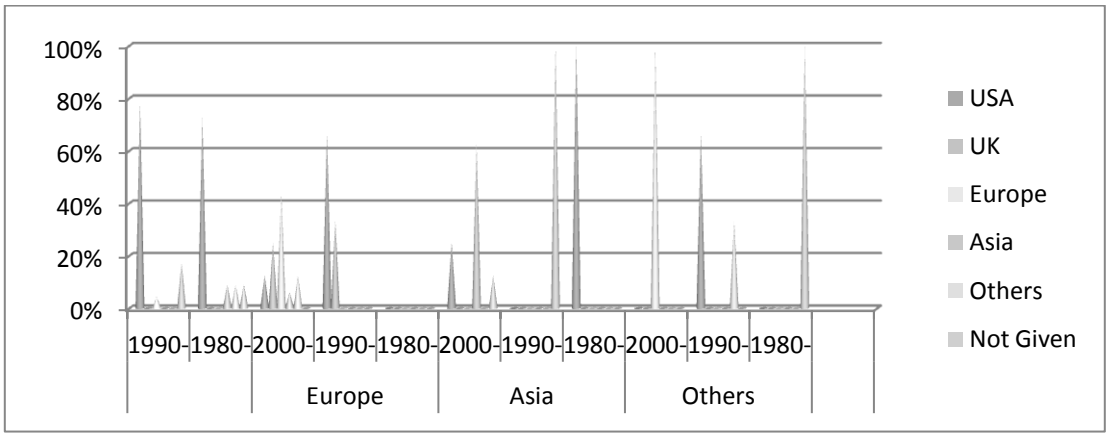

Figure 16: Region of Data region wise over the Years

6. Discussion and Future Research

6.1. Discussion

The main purpose of this research is to review the literature and study the publication trends and methodological advancements in the area of Agency Cost. For this purpose a sample of conceptual quantitative research is taken into consideration. An analysis is done on it by applying crosstabs on the identified components with years of publication and region of the author to interpret what work is being done where.

It has been found that the major amount of research is being done in USA but Asia is, surprisingly, also not far away. Major research is done by academicians while some practitioners, especially in USA, are also contributing to the research. Major amount of the research is done by single authors and even if there is more than one author, they all belong to a single country. Thus, multiple country authors and collaborations are a very small percentage. Being in Pakistan, a very important result of the analysis shows that a lot of Asian research is being published in good journals with ranking of A* and A. The major percentage of research in Agency Cost is part of the domain of Economics or Accounting and Finance.

Most of the research being done in the area of Agency Cost is based on the research design using the modeling technique also called the regression analysis. With time, though more than one statistical technique is being used by researchers to justify their results and prove their point. Since the problem

of Agency Cost occurs mainly in corporations, the unit of analysis in most of the studies is firms, and that too, non-financial firms. The main source of the data is considered to be databases nowadays, as the trend has shifted from publications. Both longitudinal and cross sectional data is prefereble but a general trend shows that in Asia cross sectional is still preferred. One thing that can be concluded is, for good research and for it to be published, the data should preferably be recent (from current or last decade). Also, data of the country where the research is taking place should be considered as it is easily available and will give an accurate picture of what is happening in that region.

6.2. Limitations and Future Directions in Agency Cost Domain

This research attempts to do a systematic analysis of literature review in the area of Agency Cost but there is still a lot to be done. Firstly the list of research, on which the analysis is done, is not exhaustive at all. For the purpose of this research only one search engine was taken into consideration. There could be other search engines that should be used to incorporate more research into the sample.

Another limitation of this research is that it analyzes only the conceptual quantitative research. A similar analysis can be done on empirical quantitative and empirical qualitative research as well. That would help give a picture of the overall research that is taking place in this area of Agency Cost.

This research is just a starting point. Its main implications is in the area of academics. A more detailed or useful analysis could be to do a Meta - Analysis of the results of various research done. In that sort of research, a summary of all the research being done in this domain can be concluded, which would have more practical and managerial implications of the results.

Also, an analysis of measurement variables will be helpful. Since most of the research in this area is done through modeling, a lot of variables are involved in estimating the models. An analysis can be done on what are the variables that studies use for agency cost and how are they measured. This would help in evaluating the quality of research and help set guidelines and give helpful tips for future research.

A more detailed analysis that would help us determine the gaps in research could be a Thematic Analysis. Such an analysis will help in determining the various themes being studied in this area and this would make the researcher to be in a better position to be able to judge what work is being done in this domain. Thus, the topics not covered or not explored can be looked into in detail for further research.

Similarly a Citation Analysis can also be done. This is a sort of a continuation of the Publication analysis as it helps analyze how many times articles are being cited and in what sort of research are they being cited in. This would help determine the quality of the articles as well as the journals as more citation or good citation would raise the quality.

7. Conclusion

From this research it can be concluded that most of the work being done in the Area of Agency cost is conceptual, using secondary data. Qualitative is more but quantitative is also gaining strength.

Asia is a region which is showing signs of good quality and more research is taking place in this area with a greater number of researchers and more use of statistical techniques for analysis thus , improving the quantitative strength of the research.

References

Adhikari, Ajay, Tondkar, Rasoul H., Hora, Judith A., (2002). An analysis of international accounting research in Journal of International Accounting Auditing & Taxation: 1992–2001, *Journal of International Accounting*, Auditing & Taxation 11, 39–49.

Atkinson, S. E., Stanley, L. R., & Tschirhart, J. (1988). Revenue sharing as an incentive in an agency problem: An example from the national football league. *RAND Journal of Economics (RAND Journal of Economics), 19*(1), 27-43.

Bisman, Jayne, (2010). Postpositivism and Accounting Research: A (Personal)Primer on Critical Realism, *AAFBJ*, Volume 4, no. 4.

Borkowski, Susan C., Welsh, Mary Jeanne, Wentzel, Kristin,(2012). Sustainability reporting at Johnson & Johnson: A case study using content analysis, *IJBIT*/ Volume 4 / Sp Issue 3.

Botha, E., Lilford, N., Pitt, L., (2011). South African management literature over the past fifteen years: Content analysis of the three top South African management journals, *South African Journal of Business Management* 42 (4).

Brereton, Pearl, Kitchenham, Barbara A., Budgen, David, Turner, Mark, Mohamed, khalil, (2007). Lessons from applying the systematic literature review process with the software engineering domain, *The Journal of Systems and Software* 80, 571 - 583.

Cohen,Jeffrey R.;Holder-Webb,Lori, (2006). Rethinking the Influence of Agency Theory in the Accounting Academy, *Issues in Accounting Education*, Vol. 21, No. 1 February 2006 pp. 17–30.

Creswell, John W. (1994). *Research Design: Qualitative and Quantitative Approaches*. Thousand Oaks, California, Sage Publications, Inc.

Dangayach,G.S., and Deshmukh, S.G., (2001), Manufacturing strategy: experiences from Indian manufacturing companies, *Production Planning & Control*, Vol. 12, No. 8.
Fama, E. F., "Agency problems and the Theory of the Firm" Journal of Political Economy, Vol. 88. (1980) 288 – 307. **In** Ellwood, W. J. and Walsh, P.J., "Mergers Acquisitions, and the Pruning of Managerial Deadwood" Strategic Management Journal, Vol. 12, No. 3. (Mar. 1991), 201 – 217.

Furubotn, E. and Pejovich, S., "Property Rights, Economic Decentralization and the Evolution of the Yugoslav Firm, 1965 - 72" Journal of Law and Economics, Vol. 16 (1973) 175 – 307. **In** Ellwood, W. J. and Walsh, P.J., "Mergers Acquisitions, and the Pruning of Managerial Deadwood" Strategic Management Journal, Vol. 12, No. 3. (Mar. 1991), 201 – 217.

Gailmard, S., & Jenkins, J. A. (2009). Agency problems, the 17th amendment, and representation in the senate. *American Journal of Political Science, 53*(2), 324-342.

Gerhard, Daniel, Brem, Alexander, Baccarella, Christian, Voigt, Kai-Ingo, (2011). Innovation Management and Marketing in the High-Tech Sector: A Content Analysis of Advertisements, *International Journal of Management* Vol. 28 No. 1 Part 2.

Graff, R. A., & Webb, J. R. (1997). Agency costs and inefficiency in commercial real estate. *Journal of Real Estate Portfolio Management, 3*(1), 19-36.

Hanna, Sherman D., Ji, HoJun, Lee, Jonghee, Son, Jiyeon, Letkiewicz, Jodi, Lim, HanNa, Zhang, Lishu, (2011). Content analysis of Financial Services Review, *Financial Services Review* 20 (2011) 237-251.

Heath,Joseph, (2009). The Uses and Abuses of Agency Theory, *Business Ethics Quarterly*, 19:4 (October 2009); ISSN 1052-150X pp. 497-528.

Iizuka, T. (2007). Experts' agency problems: Evidence from the prescription drug market in japan. *RAND Journal of Economics (Blackwell Publishing Limited), 38*(3), 844-862.

Jensen , K. L. (2005). A basic study of agency-cost source and municipal use of internal versus external control. *Accounting & Business Research, 35*(1), 53-67.

Jensen, C. M. and Meckling, W. H.,(1976). " Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure", Journal of Financial Economics, Vol. 3. (1976) 305 – 360. **In** Ellwood, W. J. and Walsh, P.J., "Mergers Acquisitions, and the Pruning of Managerial Deadwood" Strategic Management Journal, Vol. 12, No. 3. (Mar. 1991), 201 – 217.

Jensen, M. C., Meckling, W. H., (1979). Rights and production functions: An application to labor-managed firms and codetermination, *Journal of Business*, 52, pp. 469-506 In Ellwood, W. J. and Walsh, P.J., "Mergers Acquisitions, and the Pruning of Managerial Deadwood" Strategic Management Journal, Vol. 12, No. 3. (Mar. 1991), 201 – 217.

Jensen, M.C., Smith C., (1985). Stockholder, manager, and creditor interests: Applications of agency theory In Ellwood, W. J. and Walsh, P.J., "Mergers Acquisitions, and the Pruning of Managerial Deadwood" Strategic Management Journal, Vol. 12, No. 3. (Mar. 1991), 201 – 217.

Leaver, C. (2009). Bureaucratic minimal squawk behavior: Theory and evidence from regulatory agencies. *American Economic Review, 99*(3), 572-607.

Macdonald,Glenn M., (1984). New directions in the economic theory of agency, *Canadian Journal of Economics*.

McClure, J. E., & Spector, L. C. (1997). Tournament performance and 'agency' problems: An empirical investigation of 'march madness'. *Journal of Economics & Finance, 21*(1), 61.

McGuire, R. A., & Ohsfeldt, R. L. (1989). Self-interest, agency theory, and political voting behavior: The ratification of the united states constitution. *American Economic Review, 79*(1), 219.

Minor III. E., Hensley, R.L., & Wood Jr., R.D. (1993). A review of empirical manufacturing strategy studies. *International Journal of Operations and Production Management*, 14(1), 5-25

Nakata, C., & Huang, Y. (2005). Progress and promise: the last decade of international marketing research. *Journal of Business Research*, 58, 611-618.

Page, A.L., and Schirr, G.R., (2008), Growth and development of a body of knowledge: 16 years of new product development research, 1989 – 2004, *Journal of Product Innovation Management*, No. 25, pp 233-248.

Sutton, Robert I., (1997). The Virtues of Closet Qualitative Reasearch, *Organization Science*, Vol. 8, No. 1, pp. 97 - 106.

Sutton, Robert I., Staw, Barry M., (1995). What Theory is Not, *Administrative Science Quarterly*, Vol. 40, No. 3 (Sep., 1995), pp. 371 - 384.

Wu, YEN-CHUN JIM, Huang, Shihping, Kuo, Lopin, Wu, Wen-Hsuing,(2010). Management Education for Sustainability: A Web-Based Content Analysis, *Academy of Management Learning & Education*, 2010, Vol. 9, No. 3, 520–531.

Appendix

Table 1 - Methodological Developments (Percentages)				
	All Years	2000-	1990-	1980-
Total Studies	314	163	101	50
Empirical	13%	12%	15%	88%
Conceptual	87%	88%	85%	12%
Empirical Quantitative	10%	10%	9%	10%
Empirical Qualitative	3%	2%	6%	2%
Conceptual Qualitative	47%	42%	49%	62%
Conceptual Quantitative	40%	46%	37%	26%
Research Design (C-QN)				
Modelling (M)	64%	67%	62%	54%
Event Study (E)	6%	9%	3%	0%
Mathematical Equation(EQ)	2%	1%	3%	8%
Statistical Techniques(S)	26%	21%	32%	31%
Non Parametric Tests(N)	2%	1%	0%	8%
Unit of Analysis				
Nonfinancial Firms	72%	79%	62%	62%
Financial Firms (Banks and Insurance)	3%	1%	8%	0%
Bonds /Loans/Funds	6%	4%	8%	8%
Others	19%	16%	22%	31%
Data Source				
Database	67%	72%	62%	54%
Publication	57%	51%	65%	69%
Survey	19%	16%	22%	31%
Stock Exchange	6%	9%	0%	0%
Financial Statements	2%	3%	0%	0%
Documents	10%	9%	11%	8%
Not Given	3%	3%	3%	8%
Number of Sources				
One	53%	52%	57%	46%
Two	30%	31%	27%	31%
Three	15%	16%	14%	15%
not given	2%	1%	3%	8%
Country of Data				
USA	56%	45%	73%	69%
UK	6%	8%	5%	0%
France	11%	17%	3%	0%
Japan	13%	20%	0%	8%

Korea	0%	0%	0%	0%
Taiwan	0%	0%	0%	0%
Not Given	10%	5%	16%	15%
Decades				
Less than 70s	2%	1%	1%	0%
70s	3%	0%	0%	3%
80s	13%	3%	7%	2%
90s	28%	23%	5%	0%
20s	9%	9%	0%	0%
70s & 80s	8%	0%	6%	2%
80s & 90s	12%	7%	5%	0%
90s & 20s	10%	10%	0%	0%
50s-90s	1%	0%	1%	0%
60s, 70s & 80s	2%	0%	2%	0%
70s, 80s & 90s	1%	1%	0%	0%
70s, 80s, 90s & 20s	2%	1%	2%	0%
80s, 90s & 20s	2%	2%	0%	0%
Not Given	9%	4%	2%	2%
Time Series				
Cross-Sectional	43%	44%	38%	54%
Longitudinal	50%	48%	57%	38%
Pooled	2%	1%	3%	0%
Panel	5%	7%	3%	0%
Not Given	1%	0%	0%	8%
Statistical Techniques				
W ilcoxon Test (WT)	5%	3%	8%	8%
Univariate tests (UT)	10%	12%	8%	8%
Multivariate Tests (MT)	6%	8%	3%	0%
Event Study (ES)	2%	1%	3%	0%
Regression ®	42%	44%	49%	8%
OLS regression (OLS)	27%	32%	14%	38%
Logit Regression (LR)	21%	24%	16%	15%
probit model (PM)	5%	4%	3%	15%
linear / non linear specification(MP)	6%	7%	5%	0%
Maximum likelihood estimation(ML)	2%	0%	3%	15%
Correlation Analysis©	12%	13%	14%	0%
ANOVA	2%	0%	3%	8%
Others	13%	13%	11%	15%
No Tests	2%	1%	3%	0%
No. of Test				

One	54%	49%	59%	69%
Two	36%	37%	35%	31%
Three	8%	12%	3%	0%
None	2%	1%	3%	0%

Table 2 - Methodological Developments (Percentages)

	By Years				**By Region**				**By Years within Region**											
									USA			**Europe**			**Asia**			**Others**		
	All Years	**2000-**	**1990-**	**1980-**	**USA**	**Europe**	**Asia**	**Others**	**2000-**	**1990-**	**1980-**	**2000-**	**1990-**	**1980-**	**2000-**	**1990-**	**1980-**	**2000-**	**1990-**	**1980-**
Total Studies	125	75	37	13	70	22	10	5	36	23	11	16	6	0	8	1	1	1	3	1
Research Design (C-QN)																				
Modelling (M)	64%	67%	62%	54%	63%	64%	70%	40%	67%	61%	55%	69%	50%	0%	63%	100%	100%	100%	33%	0%
Event Study (ES)	6%	9%	3%	0%	6%	0%	20%	0%	8%	4%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%
Mathematical Equation(EQ)	2%	1%	3%	8%	3%	5%	0%	0%	0%	4%	9%	6%	0%	0%	0%	0%	0%	0%	0%	0%
Statistical Techniques(S)	26%	21%	32%	31%	29%	32%	10%	40%	25%	30%	36%	25%	50%	0%	13%	0%	0%	0%	67%	0%
Others	2%	1%	0%	8%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Unit of Analysis																				
Nonfinancial Firms	72%	79%	62%	62%	73%	82%	70%	60%	81%	65%	64%	88%	67%	0%	75%	0%	100%	100%	67%	0%
Financial Firms (Banks and Insurance)	3%	1%	8%	0%	3%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bonds /Loans/Funds	6%	4%	8%	8%	6%	0%	20%	0%	6%	4%	9%	0%	0%	0%	13%	100%	0%	0%	0%	0%

Others	19%	16%	22%	31%	19%	18%	10%	40%	14%	22%	27%	13%	33%	0%	13%	0%	0%	0%	33%	100%
Data Source																				
Database	67%	72%	62%	54%	59%	64%	70%	60%	56%	65%	55%	63%	67%	0%	75%	0%	100%	200%	33%	0%
Publication	57%	51%	65%	69%	66%	73%	10%	60%	67%	61%	73%	75%	67%	0%	0%	100%	0%	0%	67%	100%
Survey	19%	16%	22%	31%	24%	5%	30%	0%	19%	26%	36%	6%	0%	0%	25%	100%	0%	0%	0%	0%
Stock Exchange	6%	9%	0%	0%	1%	14%	20%	0%	3%	0%	0%	19%	0%	0%	25%	0%	0%	0%	0%	0%
Financial Statements	2%	3%	0%	0%	1%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Documents	10%	9%	11%	8%	10%	9%	20%	20%	14%	4%	9%	0%	33%	0%	25%	0%	0%	0%	33%	0%
Not Given	3%	3%	3%	8%	4%	0%	0%	0%	3%	4%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Number of Sources																				
One	53%	52%	57%	46%	50%	55%	60%	60%	50%	57%	36%	50%	67%	1900%	63%	0%	100%	0%	67%	100%
Two	30%	31%	27%	31%	33%	32%	30%	40%	36%	26%	36%	38%	17%	2000%	25%	100%	0%	100%	33%	0%
Three	15%	16%	14%	15%	14%	14%	10%	0%	14%	13%	18%	13%	17%	2100%	13%	0%	0%	0%	0%	0%
Not Given	2%	1%	3%	8%	3%	0%	0%	0%	0%	4%	9%	0%	0%	2200%	0%	0%	0%	0%	0%	0%
Country of Data																				
USA	56%	45%	73%	69%	74%	27%	30%	40%	72%	78%	73%	13%	67%	0%	25%	0%	100%	0%	67%	0%
UK	6%	8%	5%	0%	1%	27%	0%	0%	3%	0%	0%	25%	33%	0%	0%	0%	0%	0%	0%	0%
Europe	11	1	3	0	6	32	0	20	8	4	0	4	0	0	0	0	0	1	0	0

	%	7%	%	%	%	%	%	%	%	%	%	4%	%	%	%	%	%	00%	%	%
Asia	13%	20%	0%	8%	6%	5%	50%	0%	8%	0%	9%	6%	0%	0%	63%	0%	0%	0%	0%	0%
Others	4%	4%	3%	8%	3%	9%	0%	20%	3%	0%	9%	13%	0%	0%	0%	0%	0%	0%	33%	0%
Not Given	10%	5%	16%	15%	10%	0%	20%	20%	6%	17%	9%	0%	0%	0%	13%	100%	0%	0%	0%	100%
Decades																				
Less than 70s	2%	1%	3%	0%	1%	0%	0%	20%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%
70s	3%	0%	0%	31%	6%	0%	0%	0%	0%	0%	36%	0%	0%	0%	0%	0%	0%	0%	0%	0%
80s	13%	5%	24%	23%	14%	5%	10%	40%	6%	26%	18%	6%	0%	0%	0%	100%	0%	0%	33%	100%
90s	28%	39%	16%	0%	29%	36%	30%	40%	42%	22%	0%	50%	0%	0%	38%	0%	0%	100%	33%	0%
20s	9%	15%	0%	0%	6%	9%	20%	0%	11%	0%	0%	13%	0%	0%	25%	0%	0%	0%	0%	0%
70s & 80s	8%	0%	19%	23%	7%	9%	10%	0%	0%	13%	18%	0%	33%	0%	0%	0%	100%	0%	0%	0%
80s & 90s	12%	12%	16%	0%	11%	18%	0%	0%	14%	13%	0%	6%	50%	0%	0%	0%	0%	0%	0%	0%
90s & 20s	10%	16%	0%	0%	7%	14%	10%	0%	14%	0%	0%	19%	0%	0%	13%	0%	0%	0%	0%	0%
50s-90s	1%	0%	3%	0%	1%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
60s, 70s & 80s	2%	0%	5%	0%	3%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
70s, 80s & 90s	1%	1%	0%	0%	1%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
70s, 80s, 90s & 20s	2%	1%	5%	0%	3%	5%	0%	0%	3%	4%	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%
80s, 90s & 20s	2%	3%	0%	0%	0%	5%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%
Not Given	9%	7	8	2	1	0	2	0	6	9	2	0	0	0	2	0	0	0	0	0

		%	%	3%	0%	%	0%	%	%	%	7%	%	%	%	5%	%	%	%	%	%
Time Series																				
Cross-Sectional	43%	44%	38%	54%	53%	32%	40%	40%	47%	57%	64%	44%	0%	0%	50%	0%	0%	100%	33%	0%
Longitudinal	50%	48%	57%	38%	41%	55%	50%	60%	47%	39%	27%	44%	83%	0%	38%	100%	100%	0%	67%	100%
Pooled	2%	1%	3%	0%	1%	5%	0%	0%	3%	0%	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%
Panel	5%	7%	3%	0%	3%	9%	10%	0%	3%	4%	0%	13%	0%	0%	13%	0%	0%	0%	0%	0%
Not Given	1%	0%	0%	8%	1%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Statistical Techniques																				
Wilcoxon Test (WT)	5%	3%	8%	8%	6%	9%	0%	0%	3%	9%	9%	6%	17%	0%	0%	0%	0%	0%	0%	0%
Univariate tests (UT)	10%	12%	8%	8%	7%	14%	10%	20%	8%	4%	9%	13%	17%	0%	13%	0%	0%	0%	33%	0%
Multivariate Tests (MT)	6%	8%	3%	0%	3%	14%	0%	20%	6%	0%	0%	19%	0%	0%	0%	0%	0%	0%	33%	0%
Event Study (ES)	2%	1%	3%	0%	1%	5%	0%	0%	0%	4%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%
Regression ®	42%	44%	49%	8%	40%	32%	50%	0%	47%	43%	9%	19%	67%	0%	50%	100%	0%	0%	0%	0%
OLS regression (OLS)	27%	32%	14%	38%	31%	9%	20%	40%	39%	17%	36%	13%	0%	0%	13%	0%	100%	100%	33%	0%
Logit Regression (LR)	21%	24%	16%	15%	21%	23%	30%	0%	22%	22%	18%	25%	17%	0%	38%	0%	0%	0%	0%	0%
probit model (PM)	5%	4%	3%	15%	4%	9%	10%	0%	6%	0%	9%	6%	17%	0%	0%	0%	100%	0%	0%	0%
linear / non linear specification(MP)	6%	7%	5%	0%	1%	14%	0%	40%	3%	0%	0%	19%	0%	0%	0%	0%	0%	0%	67%	0%
Maximum likelihood	2%	0%	3%	15	1%	0%	0%	40%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	33	10

estimation(ML)				%															%	0%
Correlation Analysis©	12%	13%	14%	0%	13%	9%	20%	0%	17%	13%	0%	13%	0%	0%	25%	0%	0%	0%	0%	0%
ANOVA	2%	0%	3%	8%	1%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Others	13%	13%	11%	15%	13%	18%	20%	0%	14%	9%	18%	19%	17%	0%	25%	0%	0%	0%	0%	0%
No Tests	2%	1%	3%	0%	1%	5%	0%	0%	0%	4%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%
No. of Test																				
One	54%	49%	59%	69%	59%	45%	40%	60%	50%	65%	73%	44%	50%	0%	38%	100%	0%	100%	33%	100%
Two	36%	37%	35%	31%	34%	41%	60%	40%	39%	30%	27%	38%	50%	0%	63%	0%	100%	0%	67%	0%
Three	8%	12%	3%	0%	6%	9%	0%	0%	11%	0%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%
None	2%	1%	3%	0%	1%	5%	0%	0%	0%	4%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%

Table 3 - Publication Patterns (Percentages)																											
		By Years			**By Region**					**By Years within Region**																		
											USA			**Europe**			**Asia**			**Others**			**USA-Europe**			**Asia-USA**		
	Total	**2000-**	**1990-**	**1980-**	**USA**	**Europe**	**ASIA**	**Others**	**USA-Europe**	**Asia-USA**	**2000-**	**1990-**	**1980-**	**2000-**	**1990-**	**1980-**	**2000-**	**1990-**	**1980-**	**2000-**	**1990-**	**1980-**	**2000-**	**1990-**	**1980-**	**2000-**	**1990-**	**1980-**
Total Studies	125	75	37	13	70	22	10	5	5	6	36	23	11	16	6	0	8	1	3	1	3	1	3	2	0	5	1	0
Authorship-Type																												
Academics	188%	189%	192%	169%	183%	177%	230%	220%	240%	230%	183%	196%	155%	181%	167%	0%	225%	200%	100%	300%	200%	200%	267%	200%	0%	200%	200%	0%
Practioners	10%	7%	11%	31%	17%	0%	0%	0%	0%	0%	11%	17%	36%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%
Acad./ Practioner (Collaboration)	10%	5%	11%	31%	16%	0%	0%	0%	0%	0%	0%	17%	36%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Authorship-Collaboration																												
Multiple country	16%	19%	16%	0%	0%	14%	0%	40%	100%	0%	0%	0%	0%	13%	17%	0%	0%	0%	0%	100%	33%	0%	100%	100%	0%	100%	100%	0%
Single country	82%	77%	84%	100%	100%	86%	100%	60%	0%	100%	100%	100%	100%	88%	83%	0%	100%	100%	33%	0%	67%	100%	0%	0%	0%	0%	0%	0%
Authorship-Per Study																												
Single Author	27%	28%	24%	31%	23%	50%	30%	60%	0%	30%	28%	13%	27%	50%	50%	0%	25%	100	0%	0%	67%	100	0%	0%	0%	0%	0%	0%

																	%				%						
Two Author	46%	41%	57%	46%	56%	27%	20%	20%	60%	20%	50%	65%	55%	25%	33%	0%	25%	0%	0%	0%	33%	0%	33%	100%	0%	80%	100%	0%
Three Author	24%	28%	16%	23%	19%	18%	50%	20%	40%	50%	19%	17%	18%	19%	17%	0%	50%	0%	33%	100%	0%	0%	67%	0%	0%	20%	0%	0%
Four Author	2%	3%	3%	0%	3%	5%	0%	0%	0%	0%	3%	4%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Journals Ratings(Highest Publications)																											
A*	67%	32%	41%	62%	40%	18%	40%	60%	40%	40%	31%	48%	55%	25%	0%	0%	38%	0%	33%	0%	67%	100%	33%	50%	0%	80%	100%	0%
A	30%	35%	19%	31%	30%	36%	20%	20%	20%	20%	36%	17%	36%	38%	33%	0%	25%	0%	0%	100%	0%	0%	33%	0%	0%	20%	0%	0%
B	13%	11%	22%	0%	14%	14%	0%	0%	20%	0%	11%	26%	0%	13%	17%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	0%
C	6%	7%	5%	0%	4%	14%	10%	0%	0%	10%	8%	0%	0%	13%	17%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Not given	14%	16%	14%	0%	11%	18%	30%	20%	20%	30%	14%	9%	0%	13%	33%	0%	38%	0%	0%	0%	33%	0%	33%	0%	0%	0%	0%	0%
Discipline																											
Economics	21%	19%	22%	31%	16%	27%	30%	60%	0%	30%	14%	13%	27%	25%	33%	0%	25%	100%	0%	0%	67%	100%	0%	0%	0%	40%	0%	0%
Entrep	4%	5%	3%	0%	6%	5%	0%	0%	0%	0%	8%	4%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
F & A	45%	43%	46%	54%	49%	41%	20%	20%	60%	20%	44%	52%	55%	44%	33%	0%	13%	0%	33%	100%	0%	0%	67%	50%	0%	40%	100%	0%
Genr & Strat	10%	11%	14%	0%	13%	9%	0%	0%	20%	0%	14%	17%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	20%	0%	0%

Marketing	3%	4%	3%	0%	3%	0%	20%	0%	0%	20%	3%	4%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Others	2%	3%	0%	8%	3%	5%	0%	0%	0%	0%	3%	0%	9%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
N/A	14%	15%	14%	8%	11%	14%	30%	20%	20%	30%	14%	9%	9%	6%	33%	0%	38%	0%	0%	0%	33%	0%	33%	0%	0%	0%	0%

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Testing Main and Interactive Effect of Personal Coping and Social Support on Work Family conflict

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Abstract:

Managing the work family conflict is essential to perform at work and home effectively. The individuals utilize lots of their efforts to ease the work family conflict (WFC). This research investigated the role of personal coping (PC) strategies and the social support (SS) an individual receives in decreasing the level of work family conflict (WFC). Survey method was used to collect the data from Pakistan. The results of this study revealed that PC and SS are negatively associated with WFC and SS was found as moderator in the relationship between PC and WFC. The negative relationship between the PC and WFC was stronger when SS was low as compared to when it was high, whereas the excessive use of resources (i.e., coping and social support) together increased the WFC. This research has contributed by determining the role of SS as moderator in relationship between PC and WFC. Implications of the study are discussed.

Keywords: Work Family Conflict (WFC), Personal Coping (PC), and Social Support (SS)

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1. Introduction

Practically in the busy schedule of work and family activities, it is really difficult to have fair balance of work and life. There are only a few fortunate people who are enjoying the balance of work and life, while for the rest managing the work family activities is really becoming an uphill task. Sometimes individuals are doing well at work, but their family demands are not allowing them to concentrate on their work activities and sometimes vice versa may happen. The ultimate outcome of this interrole conflict arises in shape of work family conflict (WFC).

This research thought that what could be the sources to reduce the WFC. After having a brief review of the literature we decided to determine the role of personal coping (PC) and social support (SS) in easing the WFC. Many researchers have used these two terms separately as an antecedent of WFC, but the additive and interactive effect of these two on WFC has never been tested. Somech & Zahavy (2012) tested the PC and organizational support as antecedents WFC and suggested to test the effect of PC with combination of supervisory and co-workers support on WFC. Wadsworth & Owens (2007) tested the negative association of SS with WFC. Kossek et al. (2011) investigated the negative effect of supervisor support on WFC. Thus this research considered the various sources of support that an employee receives informally within the organization from supervisors and co-workers and the support an employee receives outside the organization from his/her family.

This research hypothesized that the PC level of an individual along with the SS could be very effective in easing the level of WFC among the employees.

2. Theoretical Framework and Hypotheses

2.1. Work family conflict

Various scholars have given the definitions of work-family conflict (WFC) but the most frequently quoted definition of WFC is given by the Greenhaus & Beutell (1985). They define WFC as "a form of role conflict in which the role pressures from work and family domains are mutually incompatible in some respect that is participation in the work (family) role is made more difficult by virtue of participation in the family (work) role" (1985: 77).

The initial work on WFC is well-documented and summarized by Greenhaus & Beutell (1985).

Based on literature review of Greenhaus & Beutell (1985), it becomes apparent that initial concept of WFC can be traced to the work of Kahn et al. (1964) but these researchers did not test their concept empirically. The most frequently quoted definition of WFC proposed by Greenhaus & Beutell (1985) is also based on the work of Kahn et al. (1964). As the literature review of Greenhaus & Beutell (1985) suggests, most probably the proper measurement instrument on WFC was initially developed by Werbel (1978). It consisted of four closed ended items. Before the Carlson et al. (2000) scale, the scales of WFC developed by Burke et al. (1980), Kopelman et al. (1983) were used in many empirical studies frequently. Overall on the basis of literature review, Greenhaus & Beutell (1985) proposed three forms of WFC namely, time based conflict, strain based conflict and behavior based conflict. Gutek et al. (1991) further suggested that each of these three forms of WFC have two directions namely, work interfering with family and family interfering with work. Actually they

divided the WFC into two dimensions mentioned above but they did not develop a measurement instrument for these separate measures. It was Frone et al. (1992) who developed the separate measures for WIF and FIW. Their measure consists of 2 items each for WIF and FIW. Later on Netemeyer et al. (1996) developed and validated a 10 item scale consisting of 5 items each for WIF and FIW. Stephens & Sommer (1996) also developed a measurement instrument having items for each of the 3 forms of WIF but they did not develop scale for FIW. Although the directions and forms of WFC were already discussed by many researchers (Greenhaus & Beutell, 1985; Gutek, et al., 1991; Netemeyer, et al., 1996; Stephens & Sommer, 1996) prior to Carlson et al. (2000) no one operationalized the all directions and forms of WFC. After the brief review of the literature Carlson et al. (2000) developed and validated a brief measure of WFC measuring both directions: (WIF and FIW) and all three forms: (Time, Strain, and Behavior) of WFC. Today the WFC measures of Carlson et al. (2000) are considered as most validated measures of WFC.

2.2. Personal coping

The concept of coping is used by the researchers in relationship with stress and the outcomes similar like stress such as depression, tension etc. In literature the definition of coping given by Lazarus & Folkman (1984) is most commonly quoted. They define coping as, "the person's constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the person's resources" (1984: 19).

The various researchers have used the concept of coping in different ways. The earlier research used coping as the personality trait or styles, but in contrast to this, in the late 1970's other line of research started usinhg coping as a process which changes continuously with the context in which the process of coping occurs Lazarus & Folkman (1984). They described that the process of coping has two major functions: emotion focused coping and problem focused coping. The research on coping as a process to manage the stressful events provided mixed results. The problem focused coping is effective for FIW but for WIF it is found to be less effective and emotions focused coping is found to be a little or unrelated to WFC (Somech & Zahavy, 2007). Moreover, the use of coping as a process does not specifically deals with the WFC. Specifically for coping with WFC another line of research used coping as a strategy (Hall, 1972; Somech & Zahavy, 2007). In context of the WFC, the typology of coping strategies developed by Hall (1972) is considered as the pioneering work. Hall (1972) developed 16 strategies for coping with WFC. These strategies were based on three types of roles namely, structural role redefinition, personal role redefinition, and reactive role Behaviour. Typology of Hall (1972) is found to be more related to FIW, but it has not been able to capture the whole area of WFC (Somech & Zahavy, 2012). Realizing the need for development of the coping strategies which can cover the entire concept of WFC, Somech & Zahavy (2007) designed the coping strategies which have a significant effect of the both aspect of WFC. They developed four strategies and each of the strategy consisting of two sub categories representing WIF and FIW. These strategies were super at home and super at work, good enough at home and good enough at work, priorities at home and priorities at work, delegating at home and delegating at work. Somech & Zahavy (2007) strategies are preferred in this study as compared to the others because these strategies provide separate measurement instruments for both aspect of WFC (WIF and FIW) separately. These strategies have also been validated empirically by Somech & Zahavy (2007, 2012).

2.3. Social support

The earlier concept on SS can be traced to the work of Cobb (1976). He defines SS as, "information leading the subject to believe that he is cared for and loved, that he is esteemed and valued, that he belongs to a network of communication and mutual obligations." (1976: 300). Cobb (1976) initially discussed the SS as moderator of life stressors.

Usually an individual person receives three types of SS namely, support from organization, support from work sources and support from nonwork sources (Wadsworth & Owens, 2007). The discussion of organizational support is beyond the scope of this paper, because the effect of PC and organizational support has already been empirically studied by Somech & Zahavy (2012). So this research has taken into account the effect of PC and work & nonwork related SS on WFC.

The dependent measure – WFC used in this study has been used by researchers as an antecedent as well as an outcome frequently. Many researcher have used WFC as an antecedent, the existence of which creates positive and negative outcomes such as strain (Kalliath, Hughes, & Newcombe, 2011), job satisfaction, affective commitment (Liao, 2011), turnover intention (Haar, Roche, & Taylor, 2012), organizational citizenship behaviour (Beham, 2011). Many other researchers have also used WFC as an outcome frequently. The antecedents of WFC frequently researched are family supportive perception (Lauzun, Major, & Jones, 2012), gender & work family demands (Mortazavi, Pedhiwala, Shafiro, & Hammer, 2009), negative affectivity & work overload (Karatepe, Kilic, & Isiksel, 2008) etc. This research was interested in determining the effect of factors which could reduce the level of WFC among employees. So after reviewing the literature, this research focused on the role of PC and SS in reducing WFC.

2.4. The additive model

The association of PC and SS with WFC has been tested empirically by many researchers. Wadsworth & Owens (2007) empirically tested and found the negative association of SS with WIF and FIW. Kossek et al. (2011) conducted meta-analysis of supervisory family support and WFC. They included 85 studied in their meta-analysis and their results revealed the negative association of supervisory family support with WFC. Lauzun et al. (2012) also found negative association of supervisory family support with WFC. Thus many researchers have found negative association of supervisory support with WIF and FIW (Hsu, Chen, Wang, & Lin, 2010; Karatepe, et al., 2008). Thus this research reviewed the various sources of SS that an individual received within the organization from supervisors, coworkers and outside the organization from his/her family in order to ease WFC. Apart from the SS the researchers have also empirically tested and found that PC level of an individual also plays crucial role in easing the WFC. PC strategies that an individual develops are found to have significant negative association with WFC (Somech & Zahavy, 2007, 2012).

Literature review suggested that researchers have predicted the WFC separately from PC and SS. The additive or combined effect of PC and SS in easing WFC in not tested. This research has taken into account the PC and SS together to see what is the extent to which the PC level of an individual along with the SS together reduces the WFC. Thus on the basis of above discussion the hypotheses for the additive effect of PC and SS is developed as:

Hypothesis 1(H1): Personal coping and social support are negatively associated with work family conflict (WFC)

2.5. The interactive model

Somech & Zahavy (2012) tested the additive and interactive effect of PC and organizational support on WFC and suggested that the informal support provided by supervisors and coworkers and the support an individual receives outside the organization from other sources such as family, may also be crucial in lessening WFC. As discussed earlier supervisory and coworker support is the work related support, but apart from that an individual also receives non-work related support from his/her family as well which also helps in reducing the WFC. Thus we combine the work and non-work related SS together to develop the SS construct.

Cobb (1976) initially discussed the SS as moderator of life stressors. In WFC relationships SS is used as an antecedant as well as moderator by researchers (Ahmad, 1997; Haar, 2004; Yildirim, 2008). Another initial stimuli to use the SS as moderator was based on Somech & Zahavy (2012)'s future directions. Moreover, support for interactive model can be derived from conservation of resource theory (Hobfoll, 1989). According to this theory people use resources such as personal characteristics including PC in resisting the stress, whereas SS adds in preserving the valued resources but SS may also lessen or reduce the individual resources. Individuals may utilize more PC skill to reduce the WFC as the level of SS reduces. Similarly SS received by the individuals reduces their need of investing in unnecessary PC resources (Lapierre & Allen, 2006). For interactive effect of coping and organizational support Somech & Zahavy (2012) argued that it would be ineffective to utilize both simultaneously. Utilization of both together might cause resource loss instead of gain. Thus it is hypothesized that people will utilize more PC when they are receiving low level of SS and if people are utilizing more PC resources and also having sufficient SS then instead of reduction in WFC, the excessive use of both might increase the WFC.

Hypothesis 2 (H2): The social support (SS) moderates the relationship between personal coping (PC) and work family conflict (WFC) such that the negative relationship between personal coping (PC) and work family conflict (WFC) will be stronger when social support (SS) is low as compared to when social support (SS) is high.

3. Method

3.1. Data and Sample

This banking sector of Pakistan was selected as sample for this study. The primary data was collected from the employees of the banking sector of Pakistan through a Likert type of survey questionnaire. The researcher himself visited the various banks and by hand distributed the questionnaires among the employees of each bank. The researcher also assisted the respondents in filling the questionnaires properly. The rationale to select the banking sector employee was that there is huge completion in the banking sector now a days. Banks are forced to cut off the salaries of employee due to the recession, but the workload is increasing conversely on the employees. In this situation, it was possible that the employees may experience WFC and if so what are the resources they are utilizing to cope with the WFC.

Out of 350 distributed questionnaires, 243 properly filled questionnaires were selected for this study. The response rate was around 69 %. In the preliminary screening 16 respondents were identified as outlier and were excluded from further analysis. Thus the sample of 227 was kept for final analysis. This total sample comprised 79 % males and 21 percent females. The ages of the 57 % respondents were between 20 to 29 years, 28 % were between age group of 30 to 39 years, 11% were between 40 to 49 years, and 04 percent were of the age above 50 years. The education of the 85 % respondents was 16 years and above, 14 percent had 14 years education while only 01 % had 12 years education. With respect to experience of the respondents, 40 % sample had experience of 01 to 02 years, 27 % had experience of 2 to 5 years, and 19 % had experience of 5 to 10 years while 14 % had experience of above 10 years.

4. Measures

All the measures were measure, through the five point likert scale questionnaires adapted for this study. Work family conflict was measured by 18 items scale adapted from Carlson et al. (2000). Personal coping is measured through a 22 item scale adapted from Somech & Zahavy (2007). Social supports (i.e., Supervisory and Co-workers) is measured by a 10 item scale adapted from Allen (1998) while family Support was measured by 03 items scale adapted from Allen et al. (1998).

4.1. Control variables

On the basis of previous empirical studies the demographic variables such as Gender, Age, Education and Experience were included as control variables (Hsu, et al., 2010; Lambert, Kelley, & Hogan, 2012; Liao, 2011).

4.2. Data Analysis

The process of data analysis and hypothesis testing was conducted through the statistical package for social sciences (SPSS) and analysis of the moment (AMOS). Firstly preliminary data screening tests such as missing values, outliers, normality, descriptive statistics, and correlational analyses were performed. The structural regression (SR) models were tested through AMOS. Moderation hypothesis was tested through the Orthogonalizing technique developed for latent variables used in structural equation modeling by Little et al. (2006). According to this technique orthogonalized indicators are created by forming each possible product term for the two sets of indicators for two latent constructs. Each of the resulting product terms are individually regressed on all indicators of the two latent constructs. If we have forty product terms as in our case then each of these forty product terms will be regressed on all indicators of latent construct one by one and in this way 40 standardized residuals will be saved. These resulting forty standardized residuals are called the orthogonalized product terms. Accordingly the correlations between the residual variances of the interaction indicators are specified. The results of descriptive statistics and correlation are given in table 1.

TABLE 1
Descriptive Statistics: Mean, Standard Deviation and Inter-Item Correlations

	Mean	SD	1	2	3	4	5	6	
1. Gender	NA[a]	----							
2. Age	1.62	.83	-.19**						
3. Education	1.16	.39	-.01	-.07					
4. Experience	2.07	1.07	-.14*	.77**	06-.				
5. PC	3.33	.96	.08	.01	.01	-.06	**.93**		
6. SS	3.28	.76	.07	.11	-.07	.02	.46**	**.82**	
7. WFC[b]	3.02	.91	-.09	-.06	-.03	-.03	-.43***	-.51***	**.87**

* p < 0.05, ** p < 0.01, *** p < .001

a. NA = Not Applicable, WFC=Work Family Conflict, PC=Personal Coping, SS=Social Support

Note. Diagonally in bold are given the composite reliabilities; N=227

We performed the confirmatory factor analysis (CFA) to check the model fit in the context used in this study. The fit indices included were CMIN/df, Tucker–Lewis Index (TLI), Comparative Fit Index (CFI), and Root-Mean Square Error of Approximation (RMSEA) (Hair, Black, Babin, & Anderson, 2010). When CFA was performed for the first time to check the model fit, the model fit indices were relatively poor (CMIN/df = 2.99, CFI = .708; TLI = .696, RMSEA = .094). In order to improve model fit, all the items with low factor loadings were removed. A total of 34 items was removed. Out of these 34 items, 12 items were removed from WFC measure, 08 items were removed from the measure of SS and 14 items were removed from the measure of PC, then the model fit indices improved significantly to acceptable levels (CMIN/DF = 2.36, CFI = .92, TLI = .905, RMSEA = .078).

To assess the proposed model, two alternative measurement models were also analyzed (Bentler & Bonnet, 1980). The first alternative model in which all the items were loaded on a single factor, showed poor fit to data (*CMIN/df* = 7.10, CFI = 0.62; TLI = 0.57, RMSEA = 0.16). The second model (in which a four factor solution was tested by dividing the work family conflict into two factors namely: work interference with family and family interference with work) exhibited a near fit to the data (*CMIN/df* = 2.64, CFI = 0.90; TLI = 0.88, RMSEA = 0.08). Moreover the correlation between the work interference with family and family interference with work was also higher (r = .85) which was exploiting the validity of the measures. Kline (2011) recommended that in order to establish discriminant validity the correlations among the indicators of same factor should be greater than cross factor correlations but in our case the correlations between the indicators of the two

factors of WFC were mostly similar. Overall Comparison of the three-factor model with alternative models showed a superior fit for three-factor model.

The procedure recommended by Hair et al. (2010) was adopted to check the composite (overall internal consistency) reliability and the discriminant & convergent validity of the measurement scales.

A common latent factor test was conducted to check the issue of common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The results did not show any shared variance among the items.

5. Results

To test, first main (Additive) effect model as well as interactive effect model, we developed structural regression (SR) models using AMOS. In the first model we hypothesized that PC and SS are negatively associated with WFC. The results of first SR model depicted a good fit to the data. These fit indices for this model are given in table 2.

TABLE 2
Structural Model 1 Results

Model	Description	CMIN/df	TLI	CFI	RMSEA
Model 1	Main effect model	2.36	.90	.92	.07

Note: Tucker–Lewis Index (TLI), Comparative Fit Index (CFI), and Root-Mean Square Error of Approximation (RMSEA)

Furthermore, we also added 4 covariates (Gender, age, education, experience) to above model which resulted in poor fit of the SR model (CMIN/df = 2.86, CFI = .84, TLI = .82, RMSEA = .09) and the effect of controls on the WFC was also insignificant. So controls were removed from further analysis.

In the second (Interactive effect) model we hypothesized SS as moderator in the relationship between PC and WFC. Our interactive model showed closer fit indices. The fit indices for this model are given in table 3.

TABLE 3
Structural Model 2 Results

Model	Description	CMIN/df	TLI	CFI	RMSEA
Model 2	Interactive effect model	1.46	.92	.93	.04

Note: Tucker–Lewis Index (TLI), Comparative Fit Index (CFI), and Root-Mean Square Error of Approximation (RMSEA)

The SR model 1 results for additive effect of PC and SS showed negative association of PC (β= -.255, p< .01) and SS (β= -.413, p< .01) with WFC which supported our main effect hypothesis of negative relationship of PC and SS with WFC.

The SR model 2 results for interactive effect of PC and SS (β= .419, p< .01) showed that SS moderates the relationship between PC and WFC significantly.

The results for main effect as well as for interactive effect are given in table 4.

TABLE 4
Results of Structural Regression Models for Checking the Additive and Interactive Effects of Personal Coping and Social Support on Work Family Conflict

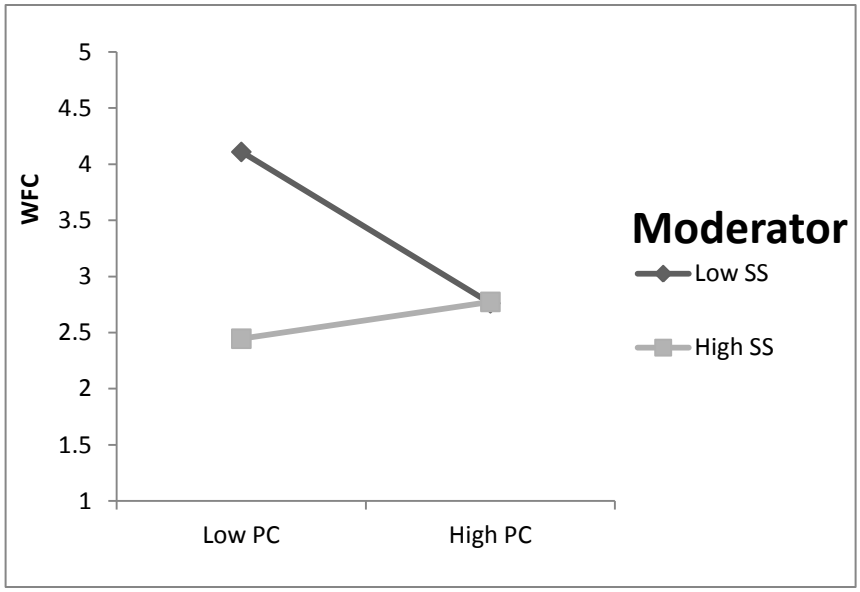
	Work Family Conflict (WFC)		
	Unstandardized β	*SE*	p - value
Additive Model:			
Personal Coping (PC)	-.255***	.082	.000
Social Support (SS)	-.413***	.092	.000
Interactive Model:			
PC X SS	.419***	.099	.000

* p < 0.05, ** p < 0.01, *** p < .001, N=227

After confirmation of moderation we plotted the slopes to check the effect of moderator on the relationship between PC and WFC.

The slopes for the relationship between PC and WFC moderated by SS showed that when there was a low level of SS, the increase in personal coping was decreasing the WFC whereas when the level of SS was high, the increase in personal coping was also increasing the WFC rather than decreasing it, which is consistent with our hypothesis 2. The Slope of interactive effect of PC and SS on WFC is given in figure 1.

FIGURE 1
Slope of Interactive Effect of Personal Coping and Social Support on Work Family Conflict



6. Discussion

The purpose of this research was to determine the extent to which the PC and SS can be helpful in reducing the WFC and whether the low or high level of SS makes the effect of PC on WFC stronger or weaker.

In the results two models were discussed. The results of both models are discussed separately.

6.1. The additive model

In hypothesis-01we hypothesized that PC and SS have negative associations with WFC. The results of the additive model are in line with our hypothesis. Discussing the role of PC and SS in reducing the WFC, it was found that both are very helpful in reducing the WFC, but SS (β= -. 413, $p<.01$) is found to be more important in reducing the WFC as compared to PC (β= -.255, $p< .01$). The blend of SS is adding to ease more WFC. Supervisors support & coworkers support in the time of distress inside the organization and family's support in work activities are really making it easier for an employee to experience less WFC. These results are also consistent with Lapierre & Allen (2006), Somech & Zahavy (2012). Thus over all PC and SS together are found as strong predictors of WFC. Over all the additive effect of both is truly important to overcome the WFC.

6.2. The interactive model

For the interactive model we hypothesized that SS moderates the relationship between PC and WFC such that the negative relationship between PC and WFC will be stronger when SS is low as compared to when SS is high. Our significant moderation results of SR model 2 suggested that SS is found as moderator in the relationship between PC and WFC.

Moreover the direction of the moderation can be confirmed from the slopes of figure 1. We can derive the result very easily that as the level of PC was increasing the level of WFC was decreasing significantly when SS was at low level as we hypothesized. Moreover the high level of SS changed the direction of relationship between PC and WFC. When SS was high, the increase in PC was also increasing the WFC instead of decreasing it. This is very much consistent with the view that PC effort of the individual and SS together may result in loss of resources instead of gain (Somech & Zahavy, 2012). As people receive low level of support from others then they heavily rely on themselves and develop the coping strategies to ease the WFC but when PC as well as SS both are increasing then these are resulting in increase in WFC.

Conclusively, the results of this study suggest that PC as well as SS can be crucial in decreasing the level of WFC. SS was found as moderator in the relationship between PC and WFC. The PC and SS interacts such that increase in PC and the decrease in SS reduces the WFC while utilization of both resources at the same time by the employees result in waste of resources which in turn leads toward increase in WFC rather than decreasing it.

7. Theoretical and Practical Implications

The organizations to provide the employees an environment in which employees are able to interact with their supervisors and coworkers to gain the sufficient amount of SS form them continuously. Organizations are required to develop not only coping skills of their employees but they need to provide them the environment in which employees can delegate their work responsibilities to each other and they are good enough to support each other . The supportive supervisor can also be very helpful for employees to manage their WFC. Some care must be taken for managing the level of SS and Coping simultaneously. If individuals are making investments in their coping skills and at the same time if they are receiving high SS then it is creating the WFC rather than decreasing it because an individual's investment in resources to enhance PC skills and high SS received is actually resulting in exploitation of resources. So organizations must make sure that employees really needed to enhance their PC skills or SS is good enough to ease the WFC. Thus over all the utilization of PC and SS can be very fruitfull for an organization to ease the WFC.

7.1. Limitations

The use of cross sectional data may include some common method variance. Most specifically the current policy of two holidays in a week in banking sector in our country may have changed the state of WFC among the employees of banking sector. The issue of WFC may vary from job to job.

7.2. Future Directions

The role of culture can be incorporated to understand the extent to which employees in context of Pakistan utilizes either coping resource or social support. Current policy of two holidays in a week in banking sector might have a significant role in reduction of WFC in the employee. In future this should be accounted for in research. In order to avoid common method variance and establish casual effect, the longitudinal data may be collected.

References

Ahmad, A. (1997). Work-Family Conflict and Social Support: A Study of Female Secretaries in Malaysia. *Pertanika J. Soc. Sci. & Hum. 5(2): 93-101, 5*(2), 93-101

Allen, M. W., Amason, P., & Holmes, S. (1998). Social Support, Hispanic Emotional Acculturative Stress and Gender. *Communication Studies, 49*(2), 139-157.

Beham, B. (2011). Work–family conflict and organizational citizenship behavior: empirical evidence from Spanish employees. *Community, Work & Family, 14*(1), 63-80.

Burke, R. J., Weir, T., & DuWors, J. R. E. (1980). Perceived type a behavior of husbands and wives' satisfaction and well-being. *Journal of Occupational Behavior, 1*, 139-150.

Carlson, D. S., Kacmar, K. M., & Williams, L. J. (2000). Construction and initial validation of a multi-dimensional measure of work family conflict. *Journal of Vocational Behaviour, 56*, 249-276.

Cobb, S. (1976). Presidential Address-1976. Social support as a moderator of life stress. *Psychosomatic medicine, 38*(5), 300-314.

Frone, M. R., Russell, M., & Cooper, M. L. (1992). Antecedents and outcomes of work-family conflict: testing a model of the work-family interface. *Journal of Applied Psychology, 77*(1), 65.

Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review, 10*(1), 76-88.

Gutek, B., Searle, S., & Klepa, L. (1991). Rational versus gender role-explanations for work–family conflict. *Journal of Applied Psychology, 76*, 560-568.

Haar, J. M. (2004). Work Family conflict and Turnover Intentions: Exploring the moderating effects of work family support. *Newzealand Journal of Psychology, 33*(1), 35-39.

Haar, J. M., Roche, M., & Taylor, D. (2012). Work family conflict and turnover intentions of indigenous employees: the importance of the whanau/family for Maori. *The International Journal of Human Resource Management, 23*, 2546-2560.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7 ed.). Upper Saddle River, NJ: Prentice Hall.

Hall, D. T. (1972). A model of coping with role conflict: The role behavior of college educated women. *Administrative Science Quarterly, 17*, 471-489.

Hobfoll, S. E. (1989). Conservation of Resources: A New Attempt at Conceptualizing Stress. *American Psychologist, 44*(3), 513-524.

Hsu, B. F., Chen, W. Y., Wang, M. L., & Lin, Y. Y. (2010). Explaining supervisory support to work-family conflict: The perspectives of guanxi, LMX, and emotional intelligence. *Journal of Technology Management in China, 5*(1), 40-45.

Kahn, R. L., Wolfe, D. M., Quinn, R., Snoek, J. D., & Rosenthal, R. A. (1964). *Organizational stress*. New York: Wiley.

Kalliath, P., Hughes, M., & Newcombe, P. (2011). When work and family are in conflict: Impact of psychological strain experienced by social workers in Australia. *Australian Social Work*, 1-17.

Karatepe, O. M., Kilic, H., & Isiksel, B. (2008). An Examination of the Selected Antecedents and Outcomes of Work-Family Conflict and Family-Work Conflict in Frontline Service Jobs. *Services Marketing Quarterly, 29*, 1-24.

Kline, R. B. (2011). *Principles and practice of structural equation modeling*: Guilford press.

Kopelman, R. E., Greenhaus, J. H., & Connolly, T. F. (1983). A model of work, family, and interrole conflict: A construct validation study. *Organizational Behavior and Human Performance, 32*, 198-215.

kossek, E. E., Pichler, S., Bodner, T., & Hammer, L. B. (2011). Workplace social support and work family conflict: A meta-analysis clarifying the influence of general and work family specific supervisor and organizational support. *Personnel psychology, 64*(2), 289-313.

Lambert, E. G., Kelley, T., & Hogan, N. L. (2012). Work-family conflict and organizational citizenship behaviors. *Journal of Crime and Justice*, 1-120.

Lapierre, L. M., & Allen, T. D. (2006). Work-supportive family, family-supportive supervision, use of organizational benefits, and problem-focused coping: implications for work-family conflict and employee well-being. *Journal of Occupational Health Psychology, 11*(2), 169.

Lauzun, H. M., Major, D. A., & Jones, M. P. (2012). Employing a Conservation of Resources Framework to Examine the Interactive Effects of Work Domain Support and Economic Impact on Work–Family Conflict. *The Psychologist-Manager Journal, 15*(1), 25-36.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*: Springer Publishing Company.

Liao, P. Y. (2011). Linking work–family conflict to job attitudes: the mediating role of social exchange relationships. *The International Journal of Human Resource Management, 22*(14), 2965-2980.

Little, T. D., Bovaird, J. A., & Widaman, K. F. (2006). On the merits of orthogonalizing powered and product terms: Implications for modeling interactions among latent variables. *Structural Equation Modeling, 13*(4), 497-519.

Mortazavi, S., Pedhiwala, N., Shafiro, M., & Hammer, L. (2009). Work–family conflict related to culture and gender. *Community, Work & Family, 12*(2), 251-273.

Netemeyer, R. G., Boles, J. S., & McMurrian, R. (1996). Development and validation of work-family conflict and family-work conflict scales. *Journal of Applied Psychology, 81*, 400-410.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903. doi: 10.1037/0021-9010.88.5.879

Somech, A., & Zahavy, A. D. (2007). Strategies for coping with work-family conflict: The distinctive relationships of gender-role ideology. *Journal of Occupational Health Psychology, 12*, 1-19.

Somech, A., & Zahavy, A. D. (2012). Coping with work-family conflict: The reciprocal and additive contributions of personal coping and organizational family-friendly support. *Work & Stress,, 26*(1), 68-90.

Stephens, G. K., & Sommer, S. M. (1996). The measurement of work to family conflict. *Educational and Psychological Measurement, 56*(3), 475-486.

Wadsworth, L. L., & Owens, B. P. (2007). The effects of social support on work–family enhancement and work–family conflict in the public sector. *Public Administration Review, 67*(1), 75-87.

Werbel, J. D. (1978). *Work and physical health. In A. K. Korman (Chair), Management Alienation. Symposium conducted at the annual meeting of the Eastern Academy of Management*. New York.

Yildirim, D. (2008). Nurses' work demands and work–family conflict: A questionnaire survey. *International Journal of Nursing Studies, 45:1366–1378*

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The Income Inequality and Domestic Terrorism Nexus: Fresh Evidence from Pakistan

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Abstract:

We examine the relationship among income inequality and domestic terrorism economic growth, education and trade openness. Results indicate that rise in income-inequality promotes terrorism. Lopsided economic growth and unequal access to education accentuate inequality and contribute to terrorism**.**

Keywords: Inequality, Terrorism, Pakistan

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1. Introduction

Why some people turn terrorists, destroy property and innocent lives; and even take their own, when it produces nothing good? Terrorist activities cause substantial economic and political damage (Frey et al. 2007). The paper examines the nexus of domestic terrorism, income inequality, per-capita economic growth, education, and trade openness. The latter two variables can contribute to inequality. Research shows that terrorists are more likely to originate from low-income countries (Blomberg et al. 2004; Abadie, 2006; Kurrild-Klitgaard et al. (2006); and Barros et al. 2008). However, Piazza (2006) finds no such relationship. Perhaps, substantial expenditure on social-welfare programs by affluent nations dissuades people from terrorism (Burgoon, 2006). Freytag et al. (2011) offer mixed evidence (Caruso and Schneider (2013) for more).

Aside economic factor, some studies have linked terrorism to political instability and repression. However, but the significance of inequality has remained largely unexplored (Krieger et at. 2011). The pervasive nature of poverty and terrorism in Pakistan makes it an interesting case-study. The findings should help policymakers identify preventive measures.

Income inequality and discrimination can breed instability by creating a strong sense of economic disenfranchisement and a ground for violent response against the status-quo. When people feel dispossessed, they are left with little option to non-violent means, making terrorism attractive (Ross, 1993). Economically, the payoff for abatement of domestic terrorism can be high, but has not been considered in the extant literature.

Section-II describes data sources. Section-III presents estimation strategy. Section-IV reports results. Conclusion and policy implications are offered in section-V.

2. The Data and Model Construction

The study period covers1972-2010, the data on income inequality is from Jamal. (2005), extrapolated to 2010. Data on secondary (basic) education, real GDP per-capita (2000=100), real trade per capita [(exports+imports)/population] and prices are from the Government of Pakistan (GoP) (2012). The terrorism series has been constructed by using descriptive data (attacks in Pakistan) compiled chronologically, by the Institute of Conflict Management, India.

We posit the following relation to investigate the impact of income inequality, economic growth, education and trade openness on domestic terrorism:

$$\ln TER_t = \alpha_1 + \alpha_I \ln I_t + \alpha_Y \ln Y_t + \alpha_E \ln E_t + \alpha_{TO} \ln TO_t + \mu_i \qquad (2)$$

Where, TER_t is domestic terrorists attacks; I_t income inequality proxied by Gini-coefficient; Y_t real GDP per-capita; E_t education per-capita; TO_t trade openness per-capita, and μ the error term assumed $N(0,\sigma^2)$. All series are transformed in natural logarithm.

Although high inequality does not necessarily produce terrorists, the former can facilitate radical environment for the latter to thrive. We expect $\alpha_I > 0$. The impact of economic growth on terrorism is uncertain. High income societies are less prone to terrorism because of high opportunity costs of violence due to stronger social services economies dampening terrorism, ($\alpha_Y < 0$) and conversely. Adverse socioeconomic, political and demographic conditions favor violence; $\alpha_Y > 0$. Trade openness promotes economic growth and economic growth generates employment opportunities which should lower terrorism () $\alpha_{TO} < 0$. However, trade openness can worsen inequality, $\alpha_{TO} > 0$ (see Bhagwatietal.2004).

3. Estimation

We implement the ARDL bounds testing approach [Pesaran et al. 2001] to cointegration because of its advantages over the others methods. The test involves estimating the following Unrestricted Error-Correction Model (UECM):

$$\Delta \ln TER_t = b_0 + \sum_{i=1}^{p} c_i \Delta \ln TER_{t-i} + \sum_{i=0}^{p} d_i \Delta \ln I_{t-i} + \sum_{i=0}^{p} e_i \Delta \ln Y_{t-i} + \sum_{i=0}^{p} f_i \Delta \ln E_{t-i} + + \sum_{i=0}^{p} g_i \Delta \ln TO_{t-i} + \pi_1 \ln TER_{t-1} + \pi_2 \ln I_{t-1} + \pi_3 \ln Y_{t-1} + \pi_4 \ln E_{t-1} + \pi_5 \ln TO + u_t \quad (2)$$

Where Δ is-different operator, b_0 the drift component, *p* maximum lag, and u_t white-noise process. We use the F-test for joint significance of lagged level variables. The null hypothesis of no co integration, $H_0 : \pi_1 = \pi_2 = \pi_3 = \pi_4 = \pi_5 = 0$; is tested against the alternate ($H_a : \pi_1 \neq \pi_2 \neq \pi_3 \neq \pi_4 \neq \pi_5 \neq 0$). We compare the computed F-statistic with the tabulated values – the upper critical bounds (UCB) and the lower critical bounds (LCB). If the F-statistic exceeds UCB, we reject the null hypothesis; and if it falls below LCB, there is no co-integration. If F is between the two bounds, the decision is inconclusive. After choosing the optimal lag order, we estimate the long and short run parameters. A negative but statistically significant lagged error correction term (ECM_{t-1}) ensures that any short run deviation converges to the long-run equilibrium. Diagnostic tests check for serial correlation, non-normality, heteroscedasticity and functional form. The stability tests are based on the cumulative sum recursive residuals (CUSUM) and cumulative sum of squares residuals ($CUSUM_{SQ}$).

4. Results and Discussion

Pakistan saw major changes in the political landscape which might cause structural break in the series. So, we apply the Lee and Strazicich (2004) unit root test. The results, reported in Table-1 suggest that each series is (1), with intercept and trend in the presence of structural breaks.

Table-1: Results of Lee-Strazicich Unit-root test with one/two structural breaks

Model: Trend-Break Model								
	Level-data				First-difference			
Series	T_{B1}	T_{B2}	Test statistics	K	T_{B1}	T_{B2}	Test statistics	K
$\ln TER_t$	1997		-3.2826	0	2002		-7.4769*	1
	1978	2000	-2.0143	1	1984	1988	-14.2398*	1
$\ln I_t$	1998		-2.1135	3	2002		-5.2001**	1
	1986	1999	-3.5595	4	1998	2002	-10.0845*	1
$\ln Y_t$	1997		-2.4853	0	1989		-5.7574*	0
	1983	2007	-3.7342	4	1981	2002	-5.9551*	0
$\ln E_t$	2001		-2.8632	2	2002		-7.8666*	3
	1990	2001	-1.5599	4	1995	2002	-13.5617*	4
$\ln TO_t$	2003		-1.9997	1	1999		-5.1443**	0
	1996	2003	-3.0818	3	1995	2003	-6.3963*	3
Note: T_{B1} and T_{B2} are structural breaks dates; k lag-length. Critical values for breaks (in intercept and trend jointly) are from Lee-Strazicich (2004).								

Using AIC (Table-2), we pick lag-2. When income inequality, economic growth, education and trade openness are the forcing variables, the F-statistic confirms cointegration with structural breaks in Pakistan, further confirmed by the Gregory-Hansen cointegration test.

Table-2: Results of ARDL Test

Bounds Testing to Cointegration				Diagnostic tests		
Estimated Models	Optimal-lags	F-statistics	Break-Year	R^2	$Adj-R^2$	D-W
$TR_t = f(I_t, Y_t, E_t, O_t)$	2,2,2,2,1	10.349*	1997	0.7763	0.4568	2.3737
$I_t = f(TR_t, Y_t, E_t, O_t)$	2,2,2,1,2	1.848	1998	0.8199	0.7869	2.0110

$Y_t = f(TR_t, I_t, E_t, O_t)$	2,2,2,2,2	1.022	1997	0.6996	0.2145	2.1992
$E_t = f(TR_t, I_t, Y_t, O_t)$	2,2,2,2,2	1.533	2001	0.8595	0.6327	2.3409
$O_t = f(TR_t, I_t, Y_t, E_t)$	2,2,2,2,2	2.213	2003	0.7375	0.3136	2.2093
Significance-level	Critical-values					
	Lower-bounds $I(0)$	Upper-bounds $I(1)$				
1%	7.527	8.803				
5%	5.387	6.437				
10%	4.477	5.420				
Note: *significant at 1% level. Critical-bounds from Narayan, (2005).						

Table-3: Gregory-Hansen Structural Break Co-integration Test

Estimated Model	$TR_t = f(I_t, Y_t, E_t, O$	$I_t = f(TR_t, Y_t, E_t, O$	$Y_t = f(TR_t, I_t, E_t, O$	$E_t = f(TR_t, I_t, Y_t, C$	$O_t = f(TR_t, I_t, Y_t, E$
Break-Year	1997	1998	1997	2001	2003
ADF T-statistics	-6.037*	-5.068**	-3.453	-2.889	-4.520
P-values	0.0000	0.0000	0.0262	0.500	0.0000
Note: * and**are significance level, 1% and 5% levels respectively. Critical values for the ADF test at 1%, 5% and 10% are -5.13, -4.61 and -4.34 respectively.					

The long-run elasticities of terrorism are reported in Table-4. (All results are on average and ceteris paribus). A 1%rise in income inequality increases domestic terrorism by 0.8028%; and is statistically significant at the 1% level. This is consistent with Derin-Gure and Elveren (2013) for Turkey. A 1%

rise in income per-capita leads to a 1.2312% increase in domestic terrorism and is significant at the 10% level. This is consistent with Shahbaz et al. (2013). The elasticity of terrorism with respect to education is small and positive; but significant at the 10% level. This contradicts Jai (2001) who finds a negative link. Krueger et at. (2003) reports no relation. While insignificant, trade openness enhances domestic terrorism.

Table-4: Long-Run results

Dependent Variable: $\ln TER_t$			
Variable	Coefficient	Std. Error	t-Statistic
Constant	-16.2150*	2.6854	-6.0380
$\ln I_t$	0.8028*	0.2381	3.3716
$\ln Y_t$	1.2312***	0.6449	1.9091
$\ln E_t$	0.1079***	0.0637	1.6934
$\ln TO_t$	0.6158	0.4773	1.2900
R^2	0.8398		
$Adj-R^2$	0.8204		
F-statistic	43.2691*		
D.W.	1.8320		
Diagnostic Test	F-statistic	P-value	
$\chi^2 NORMAL$	1.3128	0.1410	
$\chi^2 SERIAL$	0.1431	0.7076	
$\chi^2 ARCH$	1.8228	0.1786	
$\chi^2 WHITE$	1.0505	0.4230	
$\chi^2 REMSAY$	1.7909	0.1836	
Note: * and *** denote the significant at 1% and 10% levels respectively. $\chi^2 NORMAL$ is for $\chi^2 SERIAL$ $\chi^2 ARCH$			

The short run results (Table-5) show that the elasticity of domestic terrorism with respect to income inequality is positive and significant at 10% level, but that of economic growth is positive but

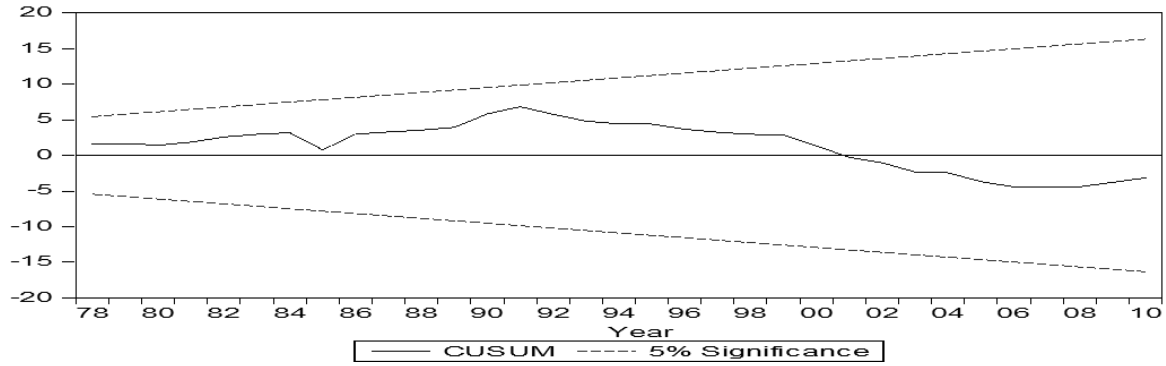
insignificant. The elasticities of terrorism with respect to education and trade-openness are positive and significant at the 1% and 5% respectively.

Table-5: Short-Run Results

Dependent Variable: $\ln TER_t$			
Variable	Coefficient	Std. Error	t-Statistic
Constant	-0.0108	0.0495	-0.2194
$\ln I_t$	0.7464***	0.4082	1.8282
$\ln Y_t$	1.0628	1.6414	0.6475
$\ln E_t$	0.2812*	0.0874	3.2150
$\ln TO_t$	0.9315**	0.4468	2.0845
ECM_{t-1}	-0.8819*	0.2603	-3.3876
R^2	0.4847		
$Adj-R^2$	0.4015		
F-statistic	5.8319*		
D. W Test	1.9150		
Diagnostic Test	F-statistic	Prob. Value	
$\chi^2 NORMAL$	1.7773	0.1338	
$\chi^2 SERIAL$	1.0070	0.3777	
$\chi^2 ARCH$	1.9192	0.1719	
$\chi^2 WHITE$	0.6341	0.7714	
$\chi^2 REMSAY$	1.7090	0.1830	
Note:*,** and*** refer to significance at 1, 5 and 10% levels respectively.			

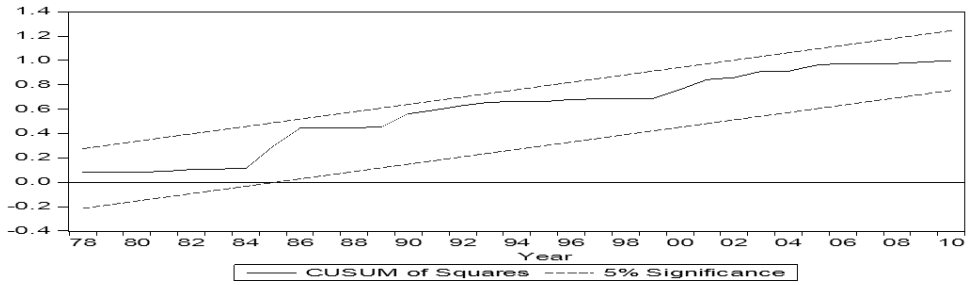
A significant ECM_{t-1} (-0.8819) indicates a stable long-run relationship. This estimate also suggests that any short-run deviation from equilibrium is corrected by 88.19% annually. The short run results pass the diagnostic tests. The model appears well-specified. The CUSUM and CUSUMsq plots show that the parameters are within 5% critical bounds.

Figure-1: CUSUM Recursive Residuals Plot



The straight lines represent 5% critical bounds.

Figure-2: CUSUM of Squares of Recursive Residuals Plot



The straight lines represent 5% critical bounds.

5. Conclusion and Policy Implications

The results from ARDL and G-H tests confirm cointegration for Pakistan during 1972-2010 period among the series even with structural break. Lopsided economic growth and unequal access to education have contributed to worsening of income inequality in Pakistan which may have exacerbated terrorism.

Government should adopt comprehensive manpower policy to address terrorism. Unless the fruits of economic growth improve living standards in general, containing terrorism in Pakistan may be hard. Narrowing down of income inequality at all levels will help. Mandating secondary level education in which "good citizenship" is a part of curriculum should help every youth. Policy to absorb educated unemployed is critical for improving self-esteem. Appropriate policy can turn Pakistan into be an outsourcing hub for tech-intensive products. Export of human capital can be part of overall manpower policy to boost foreign currency earning which then can be efficiently invested in productive sectors of the economy and create more employment.

References

Abadie, A. (2006). Poverty, political freedom, and the roots of terrorism. American Economic Review 96:50-56.

Bhagwati, J., and T.N., Srinivasan, (2002). Trade and Poverty in the Poor Countries. The American Economic Review, 92:180-83.

Blomberg, S. B., Hess, G. D., Weerapana, A. (2004). Economic conditions and terrorism. European Journal of Political Economy, 20, 463–478.

Caruso, R., Schneider, F., (2013). Brutality of Jihadist terrorism. A contest theory perspective and empirical evidence in the period 2002–2010. Journal of Policy Modeling, 35, 685–96.

Derin-Gure, P., Elveren, A. Y., (2013). Does income inequality derive the separatist terrorism in Turkey? Defense and Peace Economics. Forthcoming issue.

Frey, B.S., Luechinger, S., Stutzer, A. (2007). Calculating tragedy: assessing the costs of terrorism. Journal of Economic Surveys, 21, 1-24.

Freytag, A., Kruger, J. J., Schneider, F., (2011). The origins of terrorism cross country estimates on socio economic determinants of terrorism. European Journal of Political Economy, 27, 5–16.

Jai, J. J., (2001). Getting at the roots of terrorism. *Christian Science Monitor* 10, Dec., 2001.

Krieger, T., Meierrieks, D. (2011). What causes terrorism? Public Choice, 147:3-27.

Krueger, A. B. and Maleckova, J. (2003). Education, poverty, and terrorism: Is there a causal connection? Journal of Economic Perspectives, 17, 119-144.

Kurrild-Klitgaard, P., Justesen, M.K., Klemmensen, R., (2006). The political economy of freedom, democracy and transnational terrorism. Public Choice, 128, 289-315.

Lee, J. and Strazicich, M.C. (2004). Minimum LM unit root test with one structural break. Appalachain State University, Department of Economics, Working Paper No: 17.

Narayan, P.K., (2005). The saving and investment nexus for China: evidence from co-integration tests. Applied Economics, 37, 1979-1990.

Pesaran, M.H., Shin, Y., Smith, R. J., (2001). Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16, 289-326.

Piazza, J.A. (2006). Rooted in poverty? Terrorism, poor economic development, and social cleavages. Terrorism and Political Violence, 18, 159–177.

Ross, J.I., (1993). Structural causes of oppositional political terrorism: towards a causal model. Journal of Peace Research, 30, 317-329.

Shahbaz, M., Shabbir, M.S., Malik, M.N., Wolters, M. E., (2013). An analysis of a causal relationship between economic growth and terrorism in Pakistan. Economic Modelling 35:21-29.

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Validity of EMH; A Case Study of KSE-100Index

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Abstract:

The emerging markets offer major investments opportunities for a range of investors over the last decades especially after the global financial crises,which attracted the attention of investors and financial researchers towards the market efficiency.This research paper is designed to verify other researchers work, because some of them have provided contradictory results to test the market efficiency of Pakistani stock index (KSE-100). Average daily observations are considered for the period of twenty two years (November 02, 1991 to December 31, 2012). Unit Root tests (ADF, PP and KPSS), Runs test, Serial Autocorrelation (L-Jung-Box Q statistic) techniques are used to analyze the market's informational weak form efficiency. Return time series is not normally distributed because it is negatively skewed and leptokurtic. All of the tests applied provide sufficient statistical evidence to reject the Random Walk Hypothesis thus KSE-100 shares index is informational weak form inefficient.

Keywords: KSE-100 shares index, Random Walk Hypothesis, informational weak form efficiency, unit root, autocorrelation and runs.

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1. Introduction

The capital market is an essential measuring tool of the health of an economy and important constituent of the financial sector. Capital markets provide a platform where funds are accumulated from savers and distributed to the investors. The capital market facilitates mobilization and intermediation to both private and public sectors through a wide range of debt and equity instruments. The capital market plays a crucial role in the national economy. The development and growth of an economy is significantly influenced by the capital markets. If a capital market is efficient enough, it can provide a variety of alluring opportunities to both the domestic and foreign investors.

The capital market not only reflects the general condition of the economy, but also smoothens and accelerates the process of economic growth. For a capital market to be perfect it should be frictionless (No transaction costs, taxes and constraining regulations), perfectly competitive and informationally efficient *Copland and Weston (1988).*

The theory of random walks was proposed by first Bachelier L. (1900) and second by Osborne M.F.M.(1959). The Bachelier and Osborne models are based on two fundamental assumptions. The new available information is independent. And its evaluation would also be independent. On the basis of these assumptions, Bachelier and Osborne suggested that following market price changes would be random Fama E. (1965) proposed an application of Random Walk Theory, 'Efficient Market Hypothesis' (EMH), which suggests that none of the investors can forecast the future stock market prices as the important current information about stocks is freely available to all investors in the market and also incorporated in the stock prices that leads to a competitive market where investors behave rationally.

However, various types of information that influence security values are available in the real market place. Depending on the term "all available information", Efficient Markets Hypothesis is differentiated in three forms (weak, semi-strong and strong) by the financial researchers. The weak form of the efficient markets hypothesis assumes that the only historical available information is fully reflected in the current security prices. The semi-strong-form of market efficiency hypothesis suggests that all publicly available information is absorbed in the current security prices. The strong form of market efficiency hypothesis asserts that the current security prices incorporate all existing both public and private information (sometimes called inside information).

Various researchers have investigated the weak form market efficiency on the average stock prices of developed as well as developing economies. Worthington and Higgs (2006) Borges(2010)examined the efficiency of stock markets of developed European countries, i.e. UK, France, Spain, Greece, Germany and Portugal. Omran and Farrar (2006) tested the randomness of prices in five Middle East countries like Morocco, Jordan, Israel, Turkey, and Egypt. Hamid *et al.* (2010) have investigated the efficiency of emerging stock markets of Pakistan, India, Sri Lanka, China, Korea, Hong Kong, Indonesia, Malaysia, Philippine, Singapore, Thailand, Taiwan, Japan and Australia.

The Karachi Stock Exchange (KSE) was established on September 18, 1947. It is the biggest and most liquid stock exchange in Pakistan with an average daily turnover of 196.76 million shares and market capitalization of 4,256,832.25 million as of the end of the December, 2012.The international investors have given due considerations to the KSE in making decisions regarding foreign investment in equity markets after declaration of the international magazine 'Business Week' as the best performing world stock market in 2002. The total number of listed companies listed on KSE is 573, and for this empirical study, the average daily prices of KSE -100 shares Index were taken.

In the light of the above mentioned introduction, we have applied the unit root tests, serial autocorrelation test and runs test to investigate the effect of information on stock prices and returns. The statistical results provided evidence that Pakistan stock market does not follow RWH and hence market is not efficient.

2. Objective of the Study

The objective of this study is to examine whether the Pakistani stock market (KSE-100 shares index) is informational weak form efficient i.e. current stock prices reflect all past/ historical information and investors cannot predict future stock prices and hence stock market follows random walk.

3. Literature Review

Awad and Daraghma (2009) applied Augmented Dicky Fuller (1979) and Philip-Perrons (1988) unit root test, serial correlations and runs test to investigate tested the Weak Form Efficiency of Palestinian stock market. The statistical results reported that market was inefficient. Lima and Tabak (2004) reported the results in the favor of weak form efficiency hypothesis in the case of Hong Kong. Oskooe *et al.*(2010) explored the equity market of Iran by applying the ADF (1979), PP (1988) and KPSS (1992)techniques and findings of the study revealed that Iranian equity market is informationally weak form efficient. Abraham *et al* (2002) studied capital markets of Saudi Arabia, Bahrain and Kuwait by using runs test and variance ratio test. Saudi Arabian and Bahrain markets supported market efficiency while Kuwaiti markets do not follow EMH. Omran and Farrar (2006) have observed the EMH for the equity markets of Egypt, Israel, Jordan, Morocco, and Turkey and all the markets do not follow the EMH. Marasdeh and Shrestha (2008) tested the randomness of stock markets of Emirates(UAE)and the results of statistical techniques ADF and PP verified the informationally weak form efficient market. Chung (2006) examined the stock market of china and found it to be weak form inefficient, while the statistical results of the Xinping *et al*. (2010) are contrary to the previous research. Cooray and Wickermaisgle (2005) investigated the weak form efficiency of the South Asian equity markets, including Bangladesh, India, Pakistan, and Sri Lanka by employing the unit root tests and Elliot-Rothenber-Stock (ERS) test. The results of empirical study revealed that excluding Bangladesh all of the stock markets supported the weak form efficient hypothesis. Worthington and Higgs (2006) have conducted a detailed empirical study on twenty-seven emerging markets by applying the unit root tests (ADF, PP and KPSS), serial correlation test, runs test of randomness, and variance ratio test. The findings of empirical study suggested most of the emerging markets to be informationally weak form inefficient. Haque *et al*. (2011) and Hamid *et al.*(2010)also tested the weak market efficiency on Pakistani stock market and concluded that emerging markets do not follow random walk.

To ensure the robustness of the results, we have applied different techniques that are previously used in mentioned literature and background.

4. Methodology

The average daily observations of KSE-100 Index are used in this study to examine the randomness of security prices. The observations are taken from 2nd November 1991 to 31st December 2012.

As the purpose of this research study is to explore the informationally weak form efficiency of emerging stock market of Pakistan (KSE-100).We have used the various statistical techniques unit root tests (ADF, PP and KPSS), serial autocorrelation (Ljung Box statistics) and variance ratio to verify randomness of prices and returns.

4.1. Descriptive Statistics

Descriptive Statistics for the stock returns include the Mean, Median, Range, Standard Deviation, Jarque-Bera, Variance, Kurtosis and Skewness.

4.2. Unit root tests

Unit root tests are widely used to ensure the randomness that the stock prices are independent of historical prices (lags of current price) and are stochastically deterministic. Or we may say that current price (P) is independent of past prices ($P_{t-1,}$ $P_{t-2,}$ …) and the current prices will not support in predicting the future prices (P_{t+n}). A uni-variate time series of stock returns will become a random walk series if it contains unit root at the levels and may become stationary at the differenced form. In this study we have used widely accepted unit root tests, ADF (1979), PP (1988) and KPSS (1992).

Augmented Dickey and Fuller (ADF) unit root test

ADF was proposed by Dickey and Fuller in (1979), the basic objective of this technique is to test the presence of unit root (stationarity) or confirmation of RWH.

$$\Delta Rt = b0 + b1 + \pi 0Rt - 1 + \sum_{t=1}^{j} \psi i \, \Delta Rit - 1 + \epsilon t$$

4.3. Phillips- Perron (PP) unit root test

Proposed by Phillip and Perron in (1988), it is a nonparametric approach for testing unit root in a time series. The tests are similar to ADF tests, but it incorporates an automatic correction to the DF procedure to allow for autocorrelated residuals.To control serial correlation in the uni-variate time series ADF take k lagged differenced equation while PP test modify the t-statistic so that the asymptotic distribution of t_β is unchanged. t_β Modified is as given below:

$$\tilde{t}_\beta = t_\beta \sqrt{\frac{\gamma_0}{f_0}} - \frac{T\,(f_0 - \gamma_0)\{se\,(\hat{\beta})\}}{2\sqrt{f_0}\,.s}$$

Kwiatkowski, Phillips, Schmidt and Shin (KPSS) (1992) unit root test

Kwiatkowski et al. (1992) developed this test to check the stationarity of time series around a deterministic trend. For return series of P_t following equation is given:

$P_t = r_t + \beta t + \varepsilon_t$ t = 1,2, …., n

$r_t = r_{t-1} + \mu_t$ $\mu_t \sim$ iid N $(0, \delta_\mu^2)$

LM statistics of KPSS = $N^{-2} \sum_{t=1}^{n} \frac{S_t^2}{\delta^2}(P)$

4.4. Runs Test for Randomness

The runs test also known as Wald-Wolfwitz test is a Non-Parametric statistical technique used for measuring the randomness; i.e. that a data set is a random process or in case of time series to check that whether the data are independent of each other. The runs test is based on the assumption that the number of Runs (Expected) should be equal or closer to the number of Runs (Actual), if the change in stock price is random.

Mean= $\mu = \frac{2\,N_+\,N_-}{N} + 1$

Standard Deviation = $\delta = \sqrt{\frac{(\mu-1)(\mu-2)}{N-1}}$

Z= $\frac{r-\mu_r}{\delta_r} \sim$ N (0, 1)

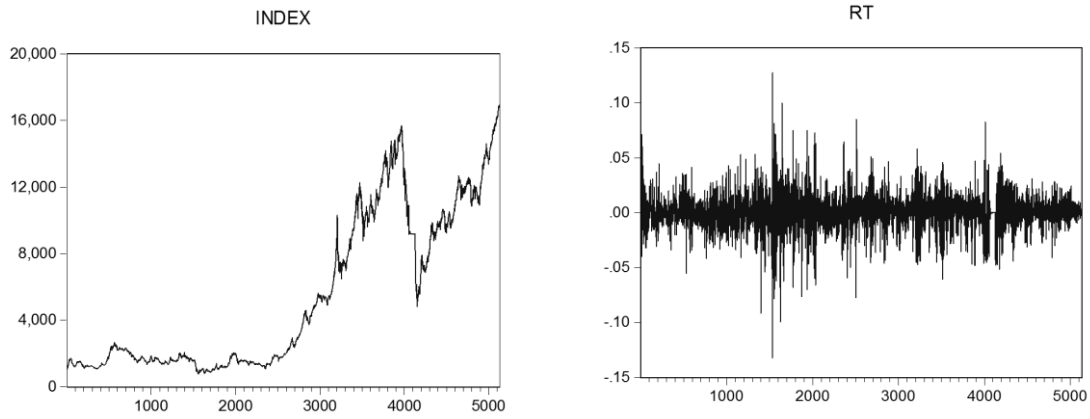
4.5. Serial Autocorrelation Test

The serial correlation test L-Jung-Box was developed by Box and Pierce. The L-Jung-Box test assesses the relationship between the current and past values on the values of data lags. The autocorrelation function (ACF) and partial autocorrelation function (PACF) defines the presence of residual autocorrelation in the time series. The L-Jung-Box Q-test is computed as follows:

$$Q\ Stat = T(T+2) \sum_{K=1}^{L} \left\{ \frac{\rho(k)^2}{(T-k)} \right\}$$

5. Results and Discussion

This study is conducted on average daily prices of KSE-100 index for the period of about twenty two years i.e. November 02, 1991- December 31, 2012. The average daily returns R_t are calculated through $R_t = \ln (P_t/P_{t-1})$; where P_t and $P_{t-1}$are defined as the log index at time t and t-1.



The index graph shows that over the time period of twenty two years index has upward drift with non-constant mean and variance. And the return R_t given graph shows the first differenced stationary returns.

5.1. Descriptive Statistics

The daily returns indicate that data are negatively skewed -0.23 and leptokurtic with kurtosis value of 8.279 with standard deviation of 0.0158. Other detailed Descriptive Statistics of the data (price and return) is given below:

Stats	**P_t**	**R_t**
Mean	5424.599	0.000547
Median	2325.000	0.000809
Maximum	16943.19	0.128
Minimum	765.740	-0.132
Std. Dev.	4700.122	0.0158
Skewness	0.704	-0.23
Kurtosis	1.983	8.279
Jarque-Bera	644.544	6001.95
Probability	0.000	0.000
Sum	27833619	2.808
Sum Sq. Dev.	1.13E+11	1.2750
Observations	5131	5130

5.2. Unit Root Test

For the estimation of unit root tests to investigate Weak Form Efficiency as an application of Random Walk Hypothesis in Pakistani Stock Exchange -100 shares Index, the study applied ADF (1979), PP (1988) and KPSS (1992) to the log returns of KSE-100. The results are reported in annexure in Table 1, 2 and 3. All the three unit root tests significantly reject the hypothesis of stationarity of the time series at 1%, 5% and 10% significance level. The results revealed that Pakistani Stock Exchange prices are predictable and do not follow random walk thus investors can explore arbitrage opportunities.

5.3. Runs Test of Randomness

	R_t
K	0.00081
Cases < K	2565
Cases >= k	2566
Total Cases	5131
Number of Runs	2266
Z-Score	-8.391
Asymp. Sig. (2-tailed)	0.000

Another technique Runs test is employed to verify the mentioned results of RWH. Under the null hypothesis of randomness the test assumes the sequence of positive (increasing) and negative (decreasing) runs i.e. log returns to be independent of each other and do not follow any systematic pattern of occurrence and thus are not of any help in predicting the pattern of occurrences. Based on our analysis, statistical results show K=0.000806 and the negative value of z-scores is -8.391, therefore time series of returns have nonrandom behavior at 1% level of significance. We can conclude that returns of stock prices are informationally weak form inefficient.

5.4. Serial Autocorrelation Test (L-Jung-Box Q Stat)

Q-statistics assumes that time series is stochastic random process or pure white noise i.e. all the autocorrelations are equal to zero which means past prices are not helpful in predicting future prices. The results of this analysis revealed that autocorrelation is not zero hence current stock prices are dependent on previous prices because Q-statistic shows serial autocorrelation. The Correlogram of 1st differenced return series is given in annexure.

6. Conclusion

This empirical study analyzed the data on KSE-100 over the period of twenty two years, i.e. November 02, 1991 to December 31, 2012 to test the weak form of efficiency in Pakistani stock market. The study examines the weak form of efficient market hypothesis through various techniques which include Unit Root tests of stationarity (ADF, PP and KPSS), Serial Autocorrelation test (L-Jung Box Q-Statistic) and Runs test of Randomness by using Eviews, SPSS and Minitab. The descriptive statistics explored the data to be distributionally non-normal, negatively skewed and leptokurtic. The results of unit root tests (ADF, PP and KPSS) significantly rejected the market weak form efficiency in Pakistani stock index. Whereas the Runs test of randomness; used to investigate Random Walk Hypothesis, the statistical results of the test are in favor of inefficient market. To verify the robustness of the empirical results, this study employs the Serial Autocorrelation test (L-Jung Box Q-Statistic). Q-statistics used twelve lags to estimate the serial autocorrelation, the reported results revealed that joint autocorrelation among twelve lags is not equal to zero which suggests that the future prices are dependent on current prices.

Thus, overall results of the study leads to the conclusion that Pakistani stock market is informationally weak form inefficient i. e current stock prices do not reflect all past/ historical information and investors can predict future stock prices. Hence KSE-100 shares index do not follow Random Walk Hypothesis. Consequently the investors can exploit the arbitrage opportunities by predicting future prices to earn abnormal returns

References

A. Haque, H. Liu and F. Nisa (2011). Testing the Weak Form Efficiency of Pakistani Market. International Journal of Economics and Financial Issues, Vol. 1(4), 153-162.

Abraham, A., Fazal J. Sayyed and Alsakran, S. (2002). Testing the Random Walk Behavior and Efficiency of the Gulf Stock Markets. The Financial Review 37 (3), 469- 480

Awad, I and Z. Daraghma. (2009), Testing the weak form efficiency of the Palestinian Securities markets. International Research Journal of Finance and Economics, 32, 7-17.

Bachelier, L., 1900. Theorie de la Speculation, Reprinted in Paul H. Cootner (ed). The Random Character of Stock Market Prices. Cambridge, Mass, The M.I.T. Press, 1964: 17-78.

Broges, M., 2010. Efficient Market Hypothesis in European Stock Markets. European Journal ofFinance, 16: 711-726.

Chung, 2006. Testing Weak-Form Efficiency of the Chinese Stock Market. Working paper presented on February 14th, 2006, at Lappeenranta University of Technology Department of Business Administration Section of Accounting and Finance.

Cooray, A and G. Wickremasingle. (2005), The Efficiency of Emerging Stock Markets: Empirical Evidence from the south Asian Region. Discussion paper, 2005-2, University of Tasmania.

Fama, E., 1965. Random Walks in Stock Market Prices. Financial Analysts Journal, 21: 55-59.

Hassan, A., M. Shoaib and Shah, 2007. Testing of random walk and market efficiency in an emerging market: an empirical analysis of KSE. Business Review Cambridge, pp: 271-281.

K. Hamid, M. Tahir, Zulfiqar and Shahid (2012). Testing the Weak Form of Efficient Market Hypothesis: Empirical Evidence from the Asia-Pacific Markets. International Research Journal of Finance and Economics, 58, 121-132.

Lima, E. J. A. and Tabak, B.M. (2004), Tests of the Random Walk Hypothesis for Equity Markets: Evidence from China, Hong Kong and Singapore, Applied Economics Letters, 11, 255-258.

Marasdeh, H and M. Shreshta. (2008), Efficiency in Emerging markets-Evidence from the Emirates Securities Market. European Journal of Economics, Finance and administrative Sciences, 12, 143-150.

Omran, M., and Farrar, S. (2006), "Tests of Weak form Efficiency in the Middle East emerging markets, Studies in Economics and Finance, 23, 13-26.

Osborne, M.F.M., 1959. Brownian motion in the Stock Market. Operations Research, VII(2): 145-173.

Oskooe, Seyed. A.P., Hong, Li., and Shamsavari, Ali. (2010), The Random Walk Hypothesis in Emerging Stock Market. International Research Journal of Finance and Economics,50, 51-61.

Worthington, A.C., and Higgs, H. (2006), Evaluating financial development in emerging capital markets with efficiency benchmarks. Journal of Economic Development, 31,17-44.

Xinping, Mahmood, Shahid and Usman, 2010. GlobalFinancial Crisis: Chinese Stock Market Efficiency.Asian Journal of Management Research, pp: 90-101.

Annexure

Table 1: (ADF-test)

Null Hypothesis: D(RT) has a unit root
Exogenous: Constant

Lag Length: 16 (Automatic based on SIC, MAXLAG=32)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-30.32495	0.0000
Test critical values:	1% level	-3.431448	
	5% level	-2.861910	
	10% level	-2.567010	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(RT,2)

Method: Least Squares

Date: 01/07/13 Time: 01:09

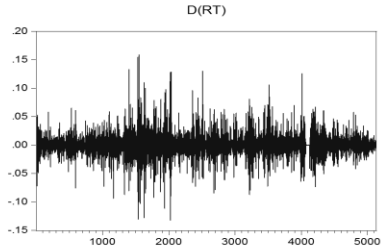
Sample (adjusted): 20 5131

Included observations: 5112 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RT(-1))	-8.425427	0.277838	-30.32495	0.0000
D(RT(-1),2)	6.581892	0.272587	24.14605	0.0000
D(RT(-2),2)	5.809652	0.263729	22.02884	0.0000
D(RT(-3),2)	5.108336	0.251994	20.27168	0.0000
D(RT(-4),2)	4.445303	0.238008	18.67715	0.0000

D(RT(-5),2)	3.843839	0.222119	17.30532	0.0000
D(RT(-6),2)	3.278721	0.204727	16.01506	0.0000
D(RT(-7),2)	2.756243	0.186128	14.80836	0.0000
D(RT(-8),2)	2.285086	0.166575	13.71803	0.0000
D(RT(-9),2)	1.886224	0.146210	12.90082	0.0000
D(RT(-10),2)	1.510596	0.125591	12.02794	0.0000
D(RT(-11),2)	1.171951	0.105014	11.16001	0.0000
D(RT(-12),2)	0.874002	0.084760	10.31151	0.0000
D(RT(-13),2)	0.613666	0.065067	9.431290	0.0000
D(RT(-14),2)	0.388284	0.046433	8.362156	0.0000
D(RT(-15),2)	0.207869	0.029134	7.134853	0.0000
D(RT(-16),2)	0.066955	0.013939	4.803405	0.0000
C	-2.38E-05	0.000222	-0.107287	0.9146

R-squared	0.801432	Mean dependent var	-9.50E-07
Adjusted R-squared	0.800770	S.D. dependent var	0.035505
S.E. of regression	0.015848	Akaike info criterion	-5.448043
Sum squared resid	1.279390	Schwarz criterion	-5.425017
Log likelihood	13943.20	Hannan-Quinn criter.	-5.439982
F-statistic	1209.395	Durbin-Watson stat	2.004057
Prob(F-statistic)	0.000000		



Graph of return series at 1st difference.

Table:2 (PP-test)

Null Hypothesis: D(RT) has a unit root
Exogenous: Constant
Bandwidth: 153 (Newey-West using Bartlett kernel)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-748.5255	0.0001
Test critical values:	1% level	-3.431444	
	5% level	-2.861908	
	10% level	-2.567009	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.000342
HAC corrected variance (Bartlett kernel)	4.53E-06

Phillips-Perron Test Equation
Dependent Variable: D(RT,2)
Method: Least Squares
Date: 01/07/13 Time: 01:14
Sample (adjusted): 4 5131
Included observations: 5128 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RT(-1))	-1.458934	0.012410	-117.5652	0.0000
C	-5.62E-06	0.000258	-0.021771	0.9826

R-squared	0.729464	Mean dependent var	-9.50E-07
Adjusted R-squared	0.729411	S.D. dependent var	0.035534
S.E. of regression	0.018484	Akaike info criterion	-5.143425
Sum squared resid	1.751354	Schwarz criterion	-5.140873
Log likelihood	13189.74	Hannan-Quinn criter.	-5.142531
F-statistic	13821.58	Durbin-Watson stat	2.289257
Prob(F-statistic)	0.000000		

Table: 3 (KPSS test)

Null Hypothesis: RT is stationary
Exogenous: Constant, Linear Trend
Bandwidth: 29 (Newey-West using Bartlett kernel)

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		0.073938
Asymptotic critical values*:	1% level	0.216000
	5% level	0.146000
	10% level	0.119000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction)	0.000249
HAC corrected variance (Bartlett kernel)	0.000474

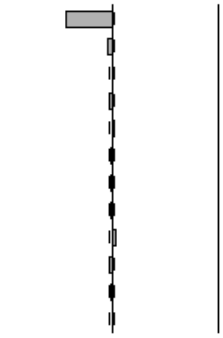
KPSS Test Equation
Dependent Variable: RT
Method: Least Squares
Date: 01/07/13 Time: 01:16
Sample (adjusted): 2 5131
Included observations: 5130 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000357	0.000440	0.810230	0.4178
@TREND(1)	7.43E-08	1.49E-07	0.499610	0.6174

R-squared	0.000049	Mean dependent var	0.000547
Adjusted R-squared	-0.000146	S.D. dependent var	0.015767
S.E. of regression	0.015768	Akaike info criterion	-5.461296
Sum squared resid	1.274952	Schwarz criterion	-5.458745
Log likelihood	14010.22	Hannan-Quinn criter.	-5.460403
F-statistic	0.249610	Durbin-Watson stat	1.740176
Prob(F-statistic)	0.617371		

Correlogram of Autocorrelation (AC)

Date: 01/07/13 Time: 21:23
Sample: 1 5131
Included observations: 5129



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.459	-0.459	1080.9	0.000
		2	-0.038	-0.315	1088.4	0.000
		3	0.014	-0.217	1089.3	0.000
		4	-0.024	-0.195	1092.4	0.000
		5	0.017	-0.146	1093.9	0.000
		6	-0.010	-0.132	1094.5	0.000
		7	-0.006	-0.127	1094.7	0.000
		8	-0.004	-0.129	1094.8	0.000
		9	0.035	-0.070	1101.0	0.000
		10	-0.026	-0.077	1104.5	0.000
		11	-0.000	-0.075	1104.5	0.000
		12	0.005	-0.067	1104.6	0.000

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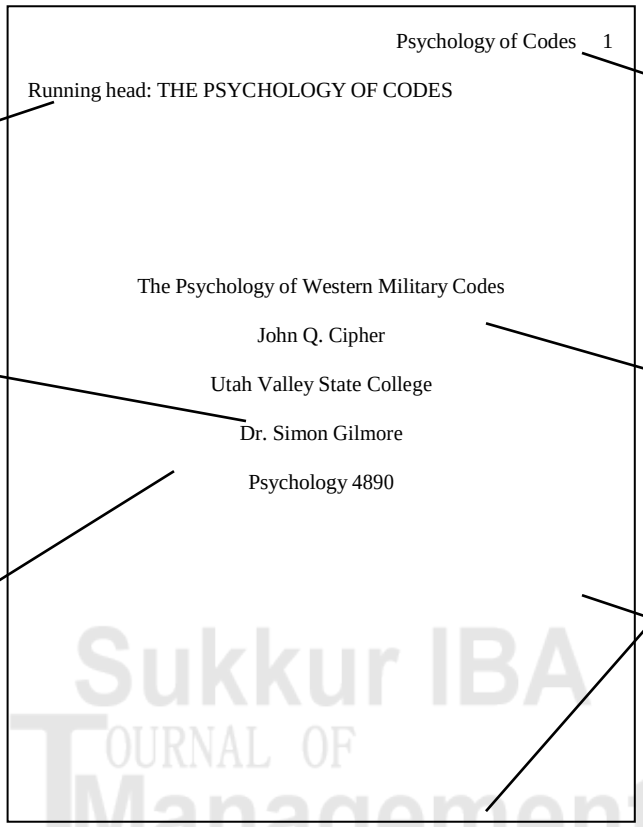

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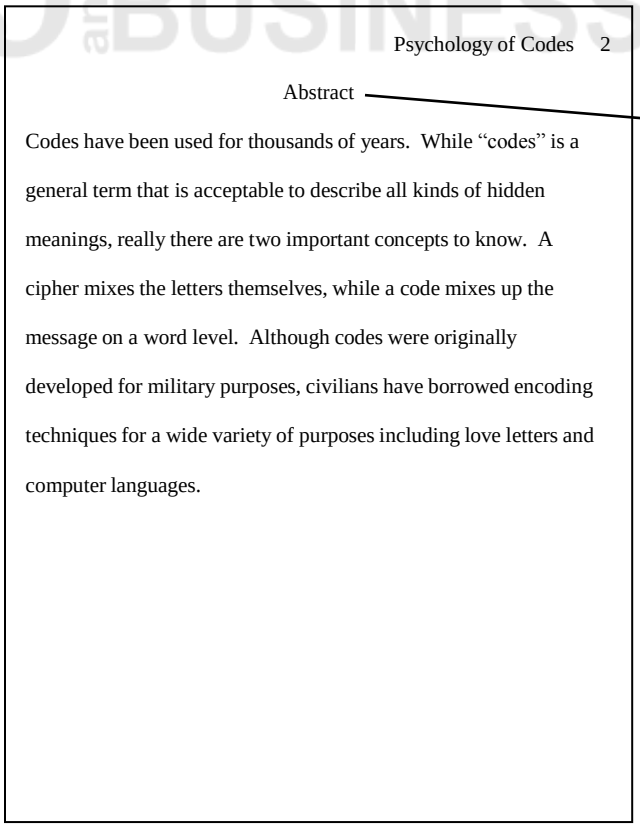

ABSTRACT TITLE
The word "Abstract" should be centered, without underlining, italics, bold, or punctuation.

First Page of Text

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The Psychology of Western Military Codes

Throughout world history, military codes have been used by nearly all civilizations. This paper will explore some of the psychology behind codes used by the west's militaries and how they aided in warfare.

The ability to decipher the code of the enemy enabled the allies to get the upper hand in WWII. American historian Thomas Powers (2001) wrote the following:

> The American ability to read Japanese cables, code- named Magic, was one of the small advantages that helped the Allies win time and then the war. Another was the British ability to read the German military communications enciphered with the Enigma machine, code-named Ultra. (p. 2)

If it had not been for this secret coding, perhaps the outcome of the second World War would have been dramatically different. Yet it

Title
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Block Quotations
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If you need only one level of heading, use level 1.
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* This paper uses two headings, so levels 1 and 3 are used.

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Since the information unveiled was so critical, the cryptoanalysts literally saved the day.

Victorian England

In Victorian England, strict parents made it hard for lovers to communicate with each other. "Lovers would have to invent their own ciphers, which they used to publish notes in newspapers" (Wilson, 1987, p. 115).

Charles Babbage's Contribution

Charles Babbage loved to read the paper and try to solve the codes. Once, he saw a message from a student inviting his girlfriend to elope. Babbage wrote in their code and advised them not to act so rashly. The girl soon wrote and asked her boyfriend not to write again because their code had been discovered (cited in Frank & Frank, 2001).

Considering Babbage's contribution to the development of the

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The basic format for an in-text citation is (Last name of author, year of publication, page number of quote). When paraphrasing or summarizing an idea, you are encouraged to include the page number but do not have to. For help with citing specific sources, see pages 207-14 in the *APA Publication Manual*, 5th ed.

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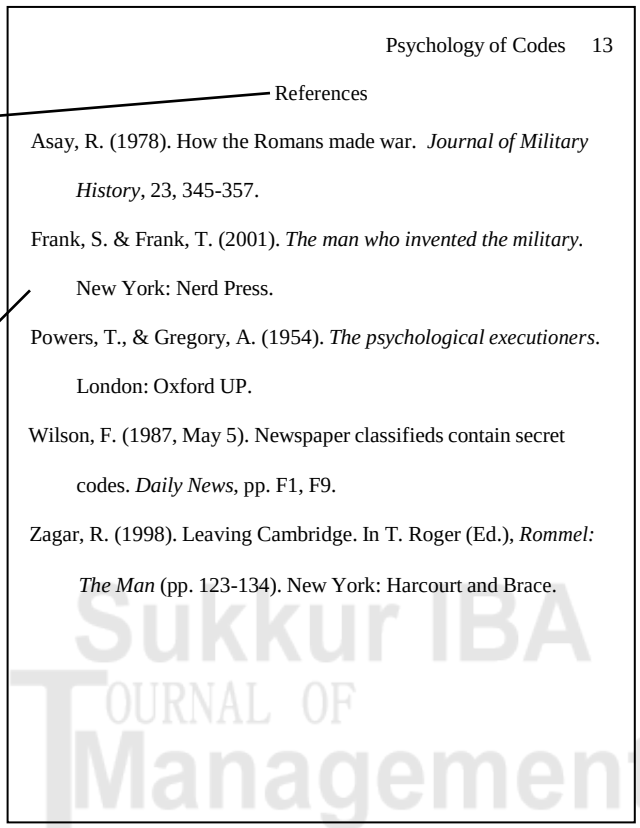

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References

Asay, R. (1978). How the Romans made war. *Journal of Military History*, 23, 345-357.

Frank, S. & Frank, T. (2001). *The man who invented the military*. New York: Nerd Press.

Powers, T., & Gregory, A. (1954). *The psychological executioners*. London: Oxford UP.

Wilson, F. (1987, May 5). Newspaper classifieds contain secret codes. *Daily News*, pp. F1, F9.

Zagar, R. (1998). Leaving Cambridge. In T. Roger (Ed.), *Rommel: The Man* (pp. 123-134). New York: Harcourt and Brace.

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List only the works you have used, not everything you read. For help with citing different sources, see the *APA Publication Manual*, 5th ed., p. 223-283.

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Arrange entries in alphabetical order by author's last name. Use the author's initials for the first and middle names.

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_ Article titles should not be italicized or put in quotation marks.
_ Only the first word of the article title, subtitle, or proper nouns should be capitalized.

BOOK BY A SINGLE AUTHOR

Last name, First initial. Middle initial. (Year). *Book title*. Location: Publisher.

Wilson, F. R. (1998). *The hand: How its use shapes the brain, language, and human culture*. New York: Pantheon.

BOOK BY TWO OR MORE AUTHORS

Last name, First initial. Middle initial., Last name, First initial. Middle initial., & Last name, First initial. Middle initial. (Year). *Book title*. Location: Publisher.

Mazzeo, J., Druesne, B., Raffeld, P. C., Checketts, K. T., & Muhlstein, A. (1991). *Comparability of computer and paper-and-pencil scores for two CLEP general examinations.* Princeton, NJ: Educational Testing Service.

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Canarie, Inc. (1997, September 27). *Towards a Canadian health IWAY: Vision, opportunities and future steps*. Retrieved November 8, 2000, from http://www.canarie.ca/press/publications /pdf/health/healthvision.doc

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