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How Multinational' Social Performance Influences Performance of Subsidiary in China: The Role of Distance

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Abstract

This paper addresses how corporate social responsibility of multinationals in China influences their Chinese subsidiaries' performance. Using panel data regression, (1) we investigate the effects of corporate social moderating effects of institutional and geographic distances between their home countries and China. Our findings show, first, that subsidiaries' corporate social performance is associated positively with their profit in China. Second, we find that the greater the cultural, economic, and geographic distances between the home country and China, the less likely it is that a subsidiary will benefit from corporate social responsibility. We enrich the theoretical understanding of the institutional conditions under which corporate social responsibility leads to specific outcomes by adding new institutional elements—the differences of culture and the economies between multinationals' host and home countries. Our findings suggest that although corporate social responsibility is still new to China, being socially responsibility provides financial benefits to multinationals. Their global and local corporate social responsibility strategies have to adjust based on local cultures and economic levels, especially with respect to fundamental beliefs about spirituality and values. The paper fulfilled the research gap between multinationals' social practices and their performance in host countries at the subsidiary level by providing empirical evidence concerning the responses to corporate social responsibility initiatives in emerging markets and clarifying the conditions under which foreign affiliates' corporate social responsibility engagement in the host country can gain better returns in local markets.

Keywords: corporate social responsibility, multinational, financial performance, cultural differences, economic differences, geographic distance

1. Introduction

Corporate social responsibility (CSR) research has focused on developed countries traditionally. With an increasing footprint by multinationals in emerging markets (Aulakh & Kotabe, 2008) like Brazil, Russia, India and China, multinationals have begun emphasizing CSR in their business strategies in emerging markets. They have become more sensitive and responsive to the problems and needs of the local business environments and now take the CSR efforts in these countries in which they operate. This compliance-oriented motivation is foundational to multinationals' CSR (Bartlett, Ghoshal, & Beamish, 2007). Moreover, CSR activities such as labor practices, local community donation and pollution prevention also serve as maintaining legitimacy and coping mechanisms for the liability of foreignness (LOF) plaguing foreign affiliates and hindering their survivability in host countries (Campbell, Eden, & Miller, 2012). The two factors may motivate multinationals to increase their awareness of CSR and improve related practices of their affiliates through self-regulation (Christmann & Taylor, 2001; Meyer, 2004). But the question is, concerning multinationals as profit-seeking organizations, whether their CSR engagement is desirable and deserves acceptance and support among local stakeholders and whether multinationals' performance can benefit from engaging CSR in host country (Dowell, Hart, & Yeung, 2000).

Although some literature has linked CSR with stakeholders' respond (e. g. Berens, Van Riel, & Van Bruggen, 2005; Luo & Bhattacharya, 2006) and financial performance (Margolis & Walsh, 2003; Orlitzky et al., 2003; Klassen & McLaughlin, 1996; Cohen, Fenn, & Naimon, 1995; Nehrt, 1996; Hart & Ahuja, 1996) most empirical work has been restricted to multinationals in developed markets. Little empirical research on this issue has been conducted in emerging markets (Dowell, Hart, & Yeung, 2000; Wang & Qian, 2011). To our knowledge, little direct evidence is about effects of multinationals' CSR in host countries on their subsidiaries' performance.

Previous international business researches have studied the impact of multinationals' business strategies on their subsidiary performance (e.g., Birkinshaw & Morrison, 1995; Jarillo & Martinez, 1990; Lin & Hsieh, 2009; Taggart, 1998; Tian & Slocum, 2014). However, research is lacking on clarifying the nature of the link between social practices and subsidiary performance (Muller, 2006). Multinationals face potential divergences from local operational practices of the home country in the host country (Tian & Slocum, 2014). Cultural distance has been cited as an explanation for a wide range of multinational strategies and organizational characteristics (e.g. Barkema, Bell, & Pennings, 1996; Grosse & Trevino, 1996; Roth & O'Donnell, 1996; Gomez-Mejia & Palich, 1997; Morosini, Shane, & Singh, 1998). The distance between home and host countries (e.g., institutional or geographic distance) has been identified as a cause of increased LOF because it generates greater unfamiliarity and discriminatory vulnerabilities for foreign firms in host countries (Eden & Miller, 2004). Thus, the distance between multinationals' home and host countries may influence the CSR effect on their performance.

How firms' CSR is relevant to their performance depends on how stakeholders reactions to its CSR (Sen & Bhattacharya, 2001). Although studies on stakeholder reactions to CSR are advanced for developed market environments (e.g. Berens, Van Riel, & Van Bruggen, 2005; Torelli, Monga, & Kaikati, 2012; Sen & Bhattacharya, 2001), such evidence is still scarce for emerging markets (Wang & Qian, 2011). We derived the evidence in the context of a transition economy—China. A transition economy provides a useful sociopolitical context in which to extend the divergences caused by distance in a profound and fine-grained manner. The characteristics of emerging markets such as China present certain challenges to firms engaging in CSR. It becomes crucial to understand (1) if multinationals' CSR practices in host countries influence their subsidiaries' performance in China, and (2) how distances between multinationals' home and host countries moderate the relationships between their CSR activities and subsidiaries' performance in China.

To answer these questions, we drew upon international business, CSR, and distance literature to develop a framework for explaining the role that CSR plays on subsidiaries' performance. First, we investigated whether multinationals' CSR in host countries resulted in significant gains on subsidiaries' performance in China, the central issue to managers when devoting resources to CSR efforts. We investigate whether subsidiaries' profit was affected by their CSR initiatives, according to scores based on their CSR contributions valued by *Fortune Magazine* from 2010 to 2012. Second, we examined whether such influences of CSR differ for firms according to distances between home and host countries. Specifically, we examined the moderate effect of distance between home and host countries.

The remainder of this article is organized as follows. In the following section, we provide the theory and develop our hypotheses concerning the impact of multinationals' CSP on market performance in China. Then, we describe the data and estimation method used in this study, and we present the empirical findings. Finally, we conclude with a summary, a discussion of managerial implications, and suggestions for further research.

2. Theory and Hypothesis Development

2.1 The Research Context

The unique China's country-specific factors and institutional environments let us observe large variations in some of the specific factors potentially relevant to the relationship between multinational corporate philanthropy and performance. It is a challenge for multinational in China to engage in CSR as McWilliams and Siegel's definition in 2001 in a transient economy in which there are neither strong nor well-enforced state regulations nor private independent organizations that closely monitor the behavior of multinationals. Along with the ever-increasing CSR spending in developed countries, there has also seen a growing concern of CSR in China. The social and environmental issues that have arisen with the rapid economic growth of China, such as product safety, income inequality, pollution, create an urgent need for firms and policy makers to consider the social and environmental influences when making their decisions. However, the characteristics of China's markets present some particular challenges to firms doing CSR. For example, compared to the developed countries where CSR has been a well-adopted concept, it is relatively new to stakeholders in China and thus it is unknown to marketers whether stakeholders (i.e., consumers and investors) respond to the CSR initiatives. There are also differences between western business ethics and the traditional Chinese culture about social values rooted in Confucianism. Furthermore, it can be difficult to motivate companies to consider the environmental and social consequences of their operations in China, as most of which still struggle for survival and economic growth. The inadequate governance and guidance in China make it unclear to firms on what and how to conduct CSR.

2.2 Multinationals' CSP and Their Performance in China

While scholars have offered various definitions of CSR (McWilliams, Siegel, & Wright, 2006; Rodriguez, Siegel, Hillman, & Eden, 2006), perhaps the most appropriate for our study is the definition by McWilliams and Siegel (2001): "actions that appear to further some social good, beyond the interests of the firm and that which is required by law" (p. 117) because large western multinationals were perceived as primarily proving elusive of local governments due to their economic power and ability to shift resources and production across borders (Christmann, 2004). And there is neither strong nor well-enforced state regulations in China and Multinationals mainly rely on self-regulation (Christmann & Taylor, 2001; Meyer, 2004). The two characteristics of research context satisfy the definition "beyond that mandated by government". Multinationals' CSR activities in host countries include programs or initiatives that benefit the stakeholders of the host countries in which their subsidiaries operate (Lam, 2009).

In China, there are both the challenges for doing CSR and the increasing needs of CSR, there might be two possible market responses to multinationals' CSP. On the one hand, CSR is new for consumers in China; as a result, related actions may not affect consumers' purchasing decisions or lead to increased sales. Although multinationals can fulfill their social responsibility in host countries with such actions as product-responsive efforts to improve product quality and environmental-responsive investments for a cleaner environment, few local Chinese consumers consider environmental and safety issues seriously in their buying decisions (Lam, 2009). Moreover, the income of majority consumers are still quite low (Tian & Slocum, 2014). For example, China's PCDI in 2010 was equivalent to US$4,000, yet the PCDI in the United States was $35,000 for the same year. Furthermore, Japan's PCDI in 2010 was equivalent to US$26,000. Based on limited income, Chinese consumers may make purchasing decisions solely on cost effectiveness (i.e., price), rather than on the long-term social benefits for emerging markets (Sheth, 2011; Torelli, Monga, & Kaikati 2012; Yin & Zhang, 2012). As a result, CSR activities may not increase consumer's purchase.

On the other hand, because the economic and social environments differ for emerging markets and mature economies, multinationals' CSP may enhance performance significantly. First, while CSR is a new concept for consumers in emerging markets, it may be attractive to them as a response to a serious product-harm crisis. Product-harm crises have not only caused loss of life, but have impacted consumers' confidence severely in matters regarding product safety. For example, a product-harm crisis initiated by contaminated "Sanlu" infant milk powder and the resulting infant deaths, hospitalization of more than 1,000 babies, and harm to more than 100,000 other babies as of December 2008 has had a prolonged impact on consumers' confidence in China's domestic dairy industry. In the wake of this event, 30% of the public demonstrated more trust in multinationals, saying that they will try their best to purchase from multinationals even pay much higher prices (Iposos, 2009).

Furthermore, firms with good working environments and comprehensive health care programs engender loyalty from employees, thereby fostering improved production efficiency and enhanced creativity. Additionally, modeling good citizenship helps firms win support from the government and local community (Mishra & Suar, 2010; Waddock & Graves, 1997; Vidaver-Cohen & Altma, 2000), which could further enhance their operational efficiency. The ultimate desired outcome is improved market performance.

Finally, a respectable performance of CSR engagement as business practice and targeted at philanthropic interaction with the community (Homburg, Stierl, & Bornemann, 2013) can increase local industrial customers' and suppliers' expected sustainability of a multinational with good CSP rating and thus generates orders and sufficient supplies. Specifically, CSR can operate as a signal in emerging markets that an organization is managed skillfully. According to the Alexander and Buchholz (1982), strong CSP levels are indicators of superior management skills and slack resources. Such firms balance their interactions with key groups of stakeholders and sustain good relationships with them. These positive relationships have the potential to resolve issues related to LOF by valuing local employees as well as outside subsidiaries (consumers and communities). Since host country stakeholders often lack information about a foreign affiliate in an emerging market, they rely on certain signals to infer firms' abilities when making purchases or supply selections.

Given the rising concerns about environmental and social issues in emerging markets and the efforts by multinationals to overcome LOF, we have hypothesized that a multinational's respectable CSP is associated positively with its subsidiaries' market performance:

H1: A multinational's CSR is associated positively with the performance of its subsidiaries.

2.3 Moderating Effect of Distance

The distance between home and host countries, in particular the institutional and geographic distance, has been predicted to increase liability of foreignness by generating higher unfamiliarity and discriminatory hazards for foreign firms in host countries (Eden & Miller, 2004). We argue that culture distance, economic distance and geographic distance have combined effect on the relationship between a multinational's CSR and the market performance of subsidiaries.

2.3.1 Cultural Distance

Cultural distance reflects differences in national cultures between the home country of the multinational and its countries of operation. The topic is of broad interest in international business research (Ricks, Toyne, & Martinez, 1990). Culture, in general, is the homogeneity of characteristics that separates one human group from another. It provides a society's characteristic profile with respect to norms, values, and institutions, thus affording an understanding of how societies manage exchanges (Hofstede, 1980, 1984; Trompenaars & Hampden-Turner, 1998). At the national level, culture is an aggregate of individual values. The concept of culture at the national level captures the typical individual priorities within a society, which "reflect the central thrust of their shared enculturation" (Schwartz, 1999).

When examining the role of cultural distance, most studies theorize that as the cultural differences between a multinational's home country and host market increase, the underlying ability of the multinational to operate effectively in the host market decreases (Gomez-Mejia & Palich, 1997; Hennart & Larimo, 1998). Generally, increased operational difficulties resulting from cultural distance are derived from a lack of understanding of the norms, values, and institutions that afford social exchanges across markets. Cultural distance may lead to greater complexity and uncertainty for host country stakeholders as they respond to a multinational's CSR choices.

First, there may be divergence between multinational's CSR guidance and Chinese stakeholder's acceptance. For example, many multinationals expend considerable effort toward reducing pollution emissions and supporting the green supply chain in China, but some of these organizations have been criticized by the Chinese public and media for not donating more from their sizeable profits earned after the Sichuan earthquake in 2008 (Iposos, 2009). The divergence of perceptions regarding appropriate CSR activities between multinationals and the Chinese people may result from differences between western business ethics and the traditional Chinese view about social values. Port and Kramer (2006) best described the CSR principle followed by most multinationals from west countries: "Each company must select issues that intersect with its particular business. The essential test that should guide CSR is not whether a cause is worthy but whether it presents an opportunity to create shared value—a meaningful benefit for society that is also valuable to the business."

However, Chinese traditional culture rooted in Confucianism holds that "anyone rich or success people should benefit others." The majority of Chinese people value morality or "righteousness" higher than"benefit" (Wang, Rouna, & Rojewski, 2005). Therefore, individuals businesses are obligated to help vulnerable groups, whether or not this devotion will incur benefits (Buttery & Leung, 1998). With this divergent view, Chinese stakeholders do not perceive multinationals' CSR as altruistic benevolence they have desired, thus they may not reward multinationals' CSR engagement.

Second, there may be divergence of the targeted stakeholders' priority of CSR between western tenet and Chinese normal. Stakeholder theory proposes the distinction between primary and secondary stakeholders (Freeman, 1984). Primary stakeholders (e. g. customers, employees and investors) are those who engage in market exchange with the firm and considered most critical because the treatment of them has the most influence on firm performance (Maignan, Ferrell, & Ferrell 2005; Berman et al., 1999). In contrast, secondary stakeholders (e. g. the community and nonprofit institutions) (Lankoski, 2009) are those who influence or affect, or are influenced or affected by, the corporation, but are not engaged in transactions with the corporation (Clarkson, 1995). Realistically, multinationals will not disregard shareholders' wealth by investing in social affairs of local community that offer no return on investment. As example of treatment difference between primary and secondary stakeholders, Airbus Industrie firstly expressed sympathy for its customers and employees in China instead of victims after the Sichuan earthquake in 2008 (http://finance.sina.com.cn/200805/001746372.shtml).

However, Chinese social normal would not agree the distinction held by stakeholder theory. Traditionally, the Chinese are deeply influenced by the Buddhist, Daoist and Confucian philosophies. Buddhists believe that compassion is a principal virtue in life. People should be and benevolent. Similarly, Daoism emphasizes that a person should be aware of the needs of others without discrimination in treating people (Wang & Qian, 2011). Although the rapid development of the Chinese economy has resulted in positive changes in the public's perceptions of the wealthy, Chinese people are still deeply influenced by traditional values (Leung, 2008). Under the morality standard, any corporations should try best to indiscriminatingly help all people who are suffering from disaster no matter they are engaged in transactions with the corporation. An investigation executed by Ipsos showed that only 34% Chinese public agreed that multinationals set a good example for Chinese enterprises in CSR regarding selection criterion and process for targeted stakeholders although they positively evaluated multinationals' philanthropy in China (Ipsos, 2011). When multinationals engage CSR in China, their discriminatory treatment of stakeholders may make Chinese public uncomfortable. Thus they may not reward multinationals' CSR engagement.

Consequently, stakeholders' attitudes may weaken the positive effects of multinationals' CSR on marketing effectiveness and efficiency. Thus, we expect a decreasing positive effect of multinationals' CSR on performance as cultural differences increase. Therefore:

H2: Cultural distance weakens the positive effect of a multinational's CSR on the market performance of subsidiaries.

2.3.2 Economic Distance

Economic distance is exhibited in differences in consumer wealth/income between countries, along with differences in costs and quality of production (Ghemawat, 2001). If the economic distance between the home and host countries is small, the countries should be similar in terms of their income and wealth profiles; thus, they should be more alike in consumer tastes, according to the country similarity theory in international economics (Linder, 1961). Economic similarity is reflected in commonalities of consumers' attitudes and lifestyles (Hewitt, Roth, & Roth, 2003). One might expect, therefore, that countries with similar income/wealth levels would exhibit similar levels of social norms and regulations. It would follow logically that their firms would engage in comparable levels of CSR, suggesting that the smaller the economic distance, the more likely it is for the foreign affiliate to adapt to the interests of stakeholders in the host country.

Moreover, there is paradox for multinationals if the economic distance between the home and host countries is great. If the host country is poorer than the home country and if a multinational adopts the same CSR practice for host and home countries, such as labor rates or welfare, it gives up the comparative advantage regarding labor cost in host countries, and departures from the original goal of pursuing profit by operating globally (Christmann, 2004). On the other hand, if a multinational adopts different levels of CSR for host and home countries, maintaining low local labor rates, the global NGO and media may accuse the company of discriminatory treatment of employees. Given the rapidly growing number of Internet users, such criticism could create an Internet buzz and destroy corporate reputations and brand images of the multinational. Therefore, as economic distance increases, we expect that it will become more difficult for the multinational to satisfy stakeholders in the host country through CSR activities that leverage market performance. Thus:

H3: Economic distance weakens the positive effect of a multinational's CSR on subsidiaries' market performance.

2.3.3 Geographic Distance

We argue that geographic distance which reflects physical remoteness has an important impact on the effects of a multinational's CSR in a host country. Some multinationals having subsidiaries in China also produce in other countries such as their own home country. Klein and Dawar (2004) have emphasized that CSR has a halo effect on customer judgments. Chinese consumers may associate the CSP of multinationals in China with that of multinationals in other countries. On one hand, some CSR activities are concerned with air, water and soil pollution. Greater geographic distance from China leads to less possibility that the pollution transfer to and harm environment in China through natural circulation. We may expect Chinese consumers to be more sensitive to the pollution of their own environment than distant places. On the other hand, social psychology theory suggests that empathy—the feeling resulting from an individual imagining himself or herself in another person's position (that is, imagining interpersonal distance to be zero)—increases the perception of attachment and the likelihood of an empathetic response (Ray, 1998). Some CSR activities concern workers (working conditions, salary, security, etc.) and we may expect Chinese consumers to be particularly sensitive to the working conditions of their fellow citizens because of empathy—general speaking, fellow citizen's interpersonal distance is less than foreigners. Greater geographic distance is expected to lead to less empathy of Chinese stakeholders to other citizenship workers who work in distant places. Thus, local stakeholders will be less likely sensitive to CSR practices of multinational in distant home countries. Therefore:

H4: Geographic distance weakens the positive effect of a multinational's CSR on subsidiaries' market performance.

3. Method

3.1 Data

We empirically examined the impact of multinationals' CSR in host countries on their subsidiaries' financial performance by referring to multinationals listed in "Fortune China CSR Ranking 2011-2013" (Fortune, 2011, 2012, 2013). Prior research has used similar CSR rankings according to the Fortune 500, which highlights the United States' most admired corporations (McGuire, Sundgren, & Schneeweis, 1988; Luo & Bhattacharya, 2006). The Fortune China CSR Ranking, introduced in 2011, aims to raise awareness of CSR, highlight relevant practices, and instigate meaningful conversations between companies and stakeholders. The populations of ranked multinational companies were derived from the Fortune Global 500 2010-2012 lists and screened to include companies with significant revenues in mainland China (based on data from China's Ministry of Commerce).

Data on the multinational were obtained from Fortune Global 500 2010-2012 lists (Fortune, 2010, 2011, 2012). Data for subsidiaries in China were obtained from China's Ministry of Commerce Census, which was published midway through the period studied. The data for rivals and local markets in China were obtained from Fortune China 500 2010-2012 lists (Fortune, 2010, 2011, 2012) and China National Bureau of Statistics. Some observations were excluded because of missing data. Our final sample included a panel of 175 foreign affiliates from 20 home countries including the United States, Canada, Japan, Korea, Hong Kong, Singapore, Germany, France, England, the Netherlands, Finland, and Australia.

3.2 Measures

3.2.1 Dependent Variable

Subsidiary's *Performance (SP)*. As Tian and Slocum (2014) used profit as a metric measure for subsidiary's performance, we used the logarithm of total profit to construct the dependent variable. .

3.2.2 Independent Variables

CSP. The CSP scores for multinationals were obtained from Fortune China CSR Ranking 2011-2013. The rankings were created to record local CSR agendas. Initially, a selection of the world's leading CSR ratings, reporting standards (e.g., ISO26000), and prominent environmental and social standards were studied, from which key criteria were identified. Then, additional tailored interviews with experts were conducted to understand China's current situation. The critical CSR issues were identified, and performance indicators were extracted and rearranged to form a ranking framework. The framework was structured around industry-recognized parameters of three domains: 1) Environment: environmental management, pollution prevention, resource use, climate change, and biodiversity; 2) Society: labor practices, customers, community, supply chain, and human rights; 3) Governance: board structure and diversity, fair marketplace practices, CSR management, and CSR communication. The ranking team and other experts scored performance indicators of each sample multinational according to their CSR records in China, which were derived from annual financial, and CSR reports, other formal documents published by firms and their official websites.

3.2.3 Moderate Variables

We computed *cultural distance* using the Kogut and Singh (1988) formula, which is based on Hofstede's four original culture dimensions: individualism-collectivism, masculinity-femininity, uncertainty avoidance, and power distance. The cultural distance between a focal firm's home country *c* and China is indicated by:

$$\sum_{d=1}^{4}\left(I_{do}-I_{dc}\right)^{2}/4V_{d}$$

where I_{do} is the value of the Hofstede index for cultural dimension d of country o, c indicates China, and V_d represents the inter-country variance of the Hofstede index along dimension d. While the Kogut and Singh index has been criticized as problematic (Håkanson & Ambos, 2010; Tung & Verbeke, 2010), it remains the most widely used index for cultural distance.

Geographic distance was calculated by the average "city-to-city" great circle distance (Bouquet & Birkinshaw, 2008), which encompasses thousands of miles between the capital cities of a focal firm's home country and host country.

We measured *economic distance* as the absolute value of the difference in real gross domestic product per capita between the focal firm's home country and the host country in a given year. Then, we transformed this variable using the following formula:

$$-log\ (1\ +\ |GDP_{pc\ \ CN}\ -\ GDP_{pc\ \ ho}|) \qquad (1)$$

Where "CN" represents China and "ho" is the focal foreign affiliate's home country in year *t* (Campbell, Eden, & Miller, 2012).

3.2.4 Control Variables

We acknowledged that firm performance may be influenced by many factors, including economic level of development, stage of development of the firm in a particular country, various differences by product lines, and different strategies (Tian & Slocum, 2014). According to our purpose, we focus on subsidiary's market environment and its legitimacy among stakeholders.

Market experience was measured as the natural logarithm of the difference between the subsidiary's date of establishment in China and the year for which performance was measured (Miller & Eden, 2006). Suchman (1995) and Hillman and Wan (2005) argue that a firm's credibility and legitimacy among stakeholders depend partly on the length of time the firm has been active in the respective country. In particular, increasing familiarity over time may allow the firm to manage its relationships with the various stakeholders more effectively (Hillman & Wan, 2005).

We also controlled for the characteristics of the local market. *Local density* has been shown to affect firm performance (Miller & Eden, 2006); it has been included to control for the munificence of the local environment. We measured local density as the natural logarithm of the number of firms in a particular sector in a year. Table 1 lists the variables.

Subsidiary size, measured as a natural logarithm of asset size, is included as a control since larger foreign affiliates have more resources (Barney, 1991) and potentially greater ability to devote to market.

4. Results

Tables 1 and 2 present summaries of variable illustrations and statistics.

Table 1. Illustration of variables

Variable	Measure
Subsidiary performance (SP)	logarithm of total profit
CSR performance (CSP)	Score of Fortune China CSR Ranking
Cultural distance (CD)	$\sum_{d=1}^{4}(I_{do}-I_{dc})^2/4V_d$
Geographic distance (GD)	Natural logarithm for thousands of miles between the capital cities of the focal firm's home country and the host country.
Economic distance (ED)	-log (1 + |GDPpc CN – GDPpc ho|
Subsidiary size (SS)	Natural logarithm of asset size
Market experience (ME)	Natural logarithm of the difference between the subsidiary's date of establishment in China and the year for which performance was measured.
Local density (LD)	Number of main rivals in a particular sector in a year

Table 2. Summary of variables statistics

Variables	Mean	SD	Variables	Mean	SD
SP	1.503	0.992	LD	21.481	0.995
CSP	10.922	4.121	CD	2.7	1.2
SS	8.985	1.909	GD	6.9	4.1
ME	0.386	0.142	ED	9.3	3.2

We ran multicollinearity diagnostics using a linear regression model because, as Menard (2001) notes, the functional form of the model is irrelevant for diagnosing collinearity. All individual variable VIF values were below 2, indicating that multicollinearity did not affect our results. Due to the panel structure of our data, we used the Hausman test to choose either a fixed-effects or a random-effects model. The test rejected the null hypothesis, indicating that the fixed-effects estimator was consistent. Therefore, we used panel regression with fixed-effects modeling. We entered only single interaction of CSR and distance into the regression model each time because of the highly linear relationship among the interactions:

$$SP_{it} = \alpha + \beta_1 CSP_{it} + \beta_2 Size_{it} + \beta_3 ME_{it} + \beta 4LDit + \beta_5 Distance + \beta_6 CSP_{it} \times Distance + \xi_{it} \quad (2)$$

Table 3 presents the findings from panel regression models and results in terms of regression coefficients. Model 1, Model 3, and Model 5 include only independent and control variables. CSR performance, subsidiary size, and market experience positively impact MP. Local density negatively impacts market performance. The results of models 1–6 all show the significant and positive impact of CSR performance on market performance (at α = 0.01), which provides support for H1.

The results for Model 2 (Table 3) show that the coefficient for the interaction of CSR and *cultural distance* is negative and statistically significant ($p < 0.05$), which provides support for H2. The results for Model 4 show that the coefficient for the interaction of CSR and *economic distance* is negative and statistically significant ($p < 0.05$), which provides support for H3. The results for Model 6 show that the coefficient for the interaction of CSR and *geographic distance* is negative and statistically significant ($p < 0.05$), which provides support for H4.

Table 3. Results of panel regression models

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Constant	2.851**	2.414	2.535*	2.530	2.660*	2.570**	2.713**
SS	1.032***	0.925***	0.882***	0.948***	0.893***	0.905***	0.885***
ME	0.406***	0.284**	0.284**	0.303**	0.300**	0.200**	0.209**
LD	-0.124**	-0.119	-0.123	-0.119*	-0.126*	-0.118*	-0.126*
CSP		0.131**	0.141**	0.131**	0.133**	0.101**	0100**
CD		-0.027	-0.024				
CSP×CD			-0.070**				
ED				-0.009	-0.007		
CSP×ED					-0.074**		
GD						-0.038	-0.032
CSP×GD							-0.045**
F	57.206***	59.086***	53.392***	60.000***	54.284***	52.482***	66.975***
Within R2	0.542	0.563	0.570	0.556	0.563	0.567	0.572

Note. Dependent variable: SP, N=175 * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

5. Discussion and Conclusion

In light of the value added in exploring multinationals social strategies across diverse contexts, we choose the CSR practices of multinationals in China as our empirical context. China, as the biggest emerging country in the world with vastly different social, cultural and political structures from the West, provides a good sample for broadening multinationals CSR knowledge (Gao, 2009). This study conceptualizes and empirically examines a framework concerning 1) the influence of multinationals' CSR in emerging markets on their performance in local markets and 2) differential impacts of multinationals based on distance differences between home and host countries.

5.1 Research Contributions

First, this study contributes to the international business literature by providing empirical evidence concerning market responses to CSR initiatives in China. Even though China is still in the early stage of CSR strategizing, which is a challenge for foreign subsidiaries in China to take socially responsible actions, this study reveals that multinationals engaging in CSR activities can gain performance. Although prior studies have concerned the link between multinationals' social practices and performance (Dowell, Hart, & Yeung, 2000), we are the first to show this link at the subsidiary level. This finding suggests to multinationals that CSR is not only an efficient coping mechanism for overcoming LOF but also an alternative marketing tool. To business scholars, this finding underscores the importance of integrating CSR into their core business management for brand-building in emerging markets because engaging in CSR is not just a responsibility that firms have to fulfill in the social domain; it is also an effective strategy for creating awareness and generating values in emerging markets.

Second, we concluded that the greater the distance between the home countries of foreign affiliates and China, the less likely benefits from CSR efforts on performance. The finding contributes to the CSR literatures focusing on the institutional level. The relationship between CSR and outcomes varies primarily due to institutional effects (Agnis & Glavas, 2012). We enrich understanding of institutional conditions under which CSR leads to specific outcomes by adding new institutional elements (the differences of culture, economy between multinationals' host and home countries). These can allow managers to determine how they position their globally and locally CSR strategy according to enhance market success.

Finally, this study also contributes to distance literature by clarifying the moderating effect under which foreign affiliates' CSR engagement in the host country can obtain better returns in local markets. (Campbell, Eden, & Miller, 2012) found that distance affects the MNC's willingness and ability to engage in CSR abroad. We advance the stream of research on multinationals' CSR and distance by revealing the moderating effect of distance on the relationship between multinationals' CSR and market performance. We have shown that geographic and institutional distances make stakeholders less likely to respond positively to foreign affiliates' CSR performance because increased distances create the tendency for multinationals to lack adequate understanding regarding norms, values, and institutions of China in which subsidiaries are located. The results of our study shed light on the effects of distance on CSR performance by foreign affiliates.

5.2 Managerial Implications

Our study can also provide enlightenment regarding management practices in China. First, we found that this market responds positively to a multinational's CSR, thus implying that CSR is not simply a strategy that builds credibility and legitimacy among stakeholders but also a strategy that creates brand imaging for consumers, leading to improved performance in China. To multinationals operating in China, our findings suggest that CSR as a non-business endeavor can enhance subsidiaries' performance. This is also an encouraging finding for multinationals, suggesting that although China is in the early stage of developing CSR, doing CSR plays an important role in building a competitive edge. Further, it provides financial benefits to them.

Second, our findings also provide some guidance for multinationals regarding effective CSR actions. Specifically, our findings imply that while engaging in CSR is valuable, not all firms benefit equally. Our results indicate that the geographic and institutional distances between host and home countries of multinationals weaken the positive effect of CSR on subsidiaries' market performance. Thus, distance remains an obstacle for multinationals that anticipate gaining in local markets with CSR investments in host countries. A possible solution for overcoming obstacles created by distance may be "Think global, Act local", first suggested by Honda Motors (Quelch & Hoff, 1986): CSR strategies of multinationals have to extend or adjust mix based on local cultures and economic level, especially with respect to fundamental beliefs about spirituality and values.

5.3 Future Research

Our study has several limitations. As the first step toward examining the financial performance of social responsibility investment in emerging markets, this study focuses on a rapidly growing and emerging market—China. To generalize our findings, future works are necessary for examining other emerging markets such as Brazil, India, South Africa, etc. Furthermore, this study only uses data covering three years. Future research to study the long-term impact (i.e., consecutive years) of a multinational's CSR on product-market performance would be valuable. Furthermore, future research could focus on different ways of measuring CSR performance and market performance of a multinational's subsidiaries or methods for controlling more variables such as investment in branding or publicity, the number of countries multinationals is operating in, decentralization of CSR decision.

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Determining the Influences of Macroeconomic Variables on Working Capital through Artificial Neural Network Modeling: The Case of Turkey

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Abstract

Finance and economics literature includes many attempts to determine the factors influential on working capital and working capital management. The present study aims to find out the relationships between working capital and macroeconomic variables. To this end, 11-year financial statement data of 128 companies traded at Borsa Istanbul from the 2003 to 2013 period were examined, and artificial neural network modeling was administered to the data obtained from these financial statements. The level of working capital, return on working capital, and cash conversion cycle were used as dependent variables and analyzed separately. Macroeconomic variables such as inflation, export index, import index, foreign exchange rate, interest rate, stock market index, gross domestic product, and gold prices were used as independent variables. The research findings show that there are relationships between working capital and macroeconomic variables; working capital is influenced by macroeconomic variables; the level of working capital is influenced most by export index and stock market index; return on working capital is influenced most by import index and stock market index; and cash conversion cycle, which represents working capital management, is influenced most by benchmark interest rate, gold prices, and foreign exchange rate.

Keywords: artificial neural networks, macro-economic variables, working capital

1. Introduction

Working capital is defined as short-term assets that are needed by enterprises to continue their activities. Working capital management is crucial for enterprises to continue their activities and increase their profitability. Working capital management is important to maximize the value of an enterprise because working capital investments are made in substantial amounts; managers allocate long time to working capital management; and the level of working capital is closely associated with volume of business and profitability.

In broad terms, working capital consists of current assets. Thus, cash, accounts receivable, and inventory which make up current assets are also the elements of working capital. These elements need to be managed separately to ensure an effective working capital management.

The level of working capital of an enterprise depends on many factors. Factors such as the volume of business of an enterprise, the maturity of its accounts receivable, the maturity of its debts, supply conditions, and inventory policy are influential on the level of working capital. However, besides internal factors, there are also exogenous factors influential on the working capital requirement of an enterprise.

This study aims to reveal the degree to what enterprises' levels of working capital are influenced by macro-economic variables and determine the variable that is most influential on the level of working capital. In this way, an attempt is made to find out working capital requirements correctly by determining the influences of exogenous factors on such requirements in a more clear way.

The order of this paper from here on (i.e. after introduction) is as follows: a brief discussion of factors influential on the level of working capital; literature review on working capital; research data; methodology; analysis; and finally general evaluation and conclusion based on the discussion of the findings obtained from analyses.

2. Factors Influential on the Level of Working Capital

Different enterprises may have different sizes, operate in different industries, employ different production techniques, and achieve different turnovers. These differences are very important for the working capital requirements of enterprises. In the literature, factors influential on working capital are divided into two: internal factors and exogenous factors.

Working capital requirement of a company depends on its characteristics and conditions. Working capitals are different when volumes of business are different, but they may also be different because of several reasons when volumes of business are the same (Aksoy, 2013, p. 67). In general, rise in volume of business brings about an increase in working capital requirement. However, different enterprises having the same level of activity may have different working capital requirements because of their internal differences. The basic reason is factors unique to enterprises.

Working capital requirement arises for an enterprise because of the inefficacy of its methods and processes. Among reasons that lead to an increase in working capital requirement are customers' delaying their payments, disruptions in production and distribution, problems resulting from suppliers, staff working unproductively, unexpected changes in demand level, recession, and inability to collect accounts receivable (Tomak, 2013, p. 15).

The most important factors influential on working capital requirement and the level of working capital are size and volume of business (Aksoy, 2013, p. 68). As stated in the beginning of this paper, working capital is defined as the money needed for enterprises to maintain their routine operations. For that reason, the volume of business of an enterprise is the key determinant of its working capital. Asset turnover, supply and sales conditions, liquidity, capacity, period of manufacture, cost of capital, and borrowing capacity are some other internal factors influential on the level of working capital.

The level of working capital is influenced by some exogenous factors besides internal factors. Aksoy and Yalçıner (2013) report that the level of working capital is influenced by such exogenous factors as tax practices, investment incentives, inflation, changes in economy, technological changes, and the levels of development of financial institutions.

Rising prices resulting from high inflation level wear away the working capitals of enterprises and lead to higher working capital requirements than expected (Akgüç, 1998, p. 208). In high inflation periods, the amount of cash held for transactions increases; increased sales due to inflation augment receivables; and inventories increase both in real terms and in monetary terms. Price increase expectations drive enterprises to increase their inventories (Sayılgan, 2003, p. 80).

In consideration of the foregoing, the present study aims to determine the relationships between the level of working capital and macro-economic variables. In this sense, an attempt is made to ascertain whether or not the levels of working capital of enterprises are influenced by macro-economic variables and what macro-economic variables influence the level of working capital more.

3. Literature Review

Working capital literature contains a lot of studies. These studies generally deal with measuring the levels of working capital, profitability, and performance of enterprises. While some studies aim to determine the working capital levels of enterprises, some others attempt to detect the factors influential on the level of working capital. Some of the studies included in working capital literature are given below.

Mongrut et al. (2014) tried to determine the factors influential on working capital management in Latin American companies. They used an unbalanced panel data analysis for companies quoted on stock exchanges and observed that companies in Argentina, Brazil, Chile and Mexico were holding cash excesses that could destroy firm value. The results of this study indicate that cash conversion cycle, company's market power, future sales, and country risk are influential on the way Latin American companies manage their working capitals with significant differences among countries in the region.

Doğan and Elitaş (2014) attempted to identify the determinants of the working capital requirements of food companies traded at Borsa Istanbul. To this end, they used the financial data of 15 firms from the 2006 to 2012 period and employed multiple regression and correlation methods. The results of this study show that there are positive relationships between an enterprise's level of working capital and its cash conversion cycle, cash flow, and return on assets, a negative relationship between leverage and size, and a positive but statistically insignificant relationship between gross domestic product and interest rate.

Mohamad and Elias (2013) aimed to determine the important factors influential on working capital management in companies traded at stock exchange in Malaysia. To this end, they examined 150 publicly held companies from 7 different industries in the 2002 to 2011 period. They used cash conversion cycle and working capital as dependent variables and took debt, capital expenditure, free cash flow, gross domestic product, and firm growth as independent variables. They detected significant relationships between working capital and the independent variables.

Mansoori and Muhammad (2012) tried to determine the important factors influential on working capital management of the companies traded at stock exchange in Singapore. They found negative relationships between working capital management and firm size, operating cash flow, capital expenditures, and gross domestic product.

Abbadi and Abbadi (2012) attempted to identify the variables determining working capital in Palestinian industrial firms. They used a sample composed of 11 industrial firms traded at the Palestine Exchange. While working capital was used as dependent variable, some financial and economic variables such as cash conversion cycle, operating cash flow, return on assets, loan rate, and economic growth were used as independent variables. Parameters were predicted based on the panel data related to 11 industrial firms from the 2004 to 2011 period. It was concluded that cash conversion cycle, return on assets, and operating cash flow are significant determinants and are in a positive relationship with working capital requirements while leverage and firm size are significant determinants but are in a negative relationship with working capital requirements. It was seen, on the other hand, that economic variables such as interest rate, gross domestic product, and real growth rate have no significant influence on working capital.

Similarly, Nguyễn (2013) aimed to examine the factors influential on working capital requirement by using panel data of 265 companies traded at Ho Chi Minh Stock Exchange from the 2007 to 2012 period. It was concluded that firm size, profitability, and business cycle have positive and significant influences on the working capital requirements of Vietnamese companies. In addition, it was observed that the more a company uses financial leverages, the less working capital it needs.

Gill (2011) attempted to determine the factors influential on working capital requirements in Canada. The research sample consisted of 166 Canadian firms traded at Toronto Stock Exchange for a period of 3 years between 2008 and 2010. It was concluded that business cycle, return on assets, internalization of firm, and firm size are influential on working capital requirements in Canada.

Chiou et al. (2006) examined the factors influential on working capital management. Net liquidity balance and working capital requirements were used as measures of working capital management. It was seen that debt ratio and operating cash flow influence the working capital management of a company. However, they failed to obtain consistence evidence about the influences of business cycle, industry, firm growth, firm performance, and firm size on working capital management.

Büyükşalvarcı and Abdioğlu (2010) tried to determine the variables influential on the working capital requirements of firms before and during crisis and made an attempt to ascertain whether or not such variables varied. They concluded that increases in leverage ratio and assets ratio reduce working capital requirement.

Nazir and Afza (2009) examined the factors influential on the working capital requirements of companies. To this end, they examined 132 manufacturing firms from 14 industrial groups traded at Karachi Stock Exchange between 2004 and 2007. While working capital requirement was used as dependent variable, various financial and economic factors such as business cycle, level of economic activity, leverage, firm growth, operating cash flow, firm size, industry, return on assets, and Tobin's q were taken as the determinants of working capital management. It was found out that business cycle, leverage, return on assets, and Tobin's q are influential on working capital. Similarly, Taleb et al. (2010) tried to determine the factors influential on working capital by using 82 industrial firms traded at Amman Stock Exchange between 2005 and 2007. While working capital requirement was used as dependent variable, various financial and economic factors such as firm's business cycle, level of economic activity, leverage, firm growth, operating cash flow, firm size, return on assets, and Tobin's q were taken as independent variables. Simple and multiple regression analysis results indicated statistically significant relationships between working capital and all independent variables.

Saldanlı (2012) analyzed the influences of working capital managements and liquidities of BIST-100 index manufacturing industry firms on their profitability. It was concluded that increased liquidity ratio and more working capital influence profitability negatively. Likewise, Dursun and Ayrıçay (2012) focused on the relationship between working capital and gross profit in enterprises listed on Borsa Istanbul. They used data including the annual data of 120 manufacturing and commercial enterprises traded at Borsa Istanbul and 1200 observations. They found a negative relationship between working capital and gross profitability.

Aygün (2012) attempted to determine the relationship between return on assets and working capital for 107 manufacturing industry firms traded at Borsa Istanbul between 2000 and 2009. The financial data of the firms were subjected to regression and correlation analyses. An inverse relationship was detected between working capital and profitability. Akbulut (2011) examined the relationship between working capital management and profitability in manufacturing industry firms traded at Borsa Istanbul between 2000 and 2008 and reached a similar result to Aygün.

As is seen above, most works on working capital tried to determine the factors influential on working capital. The works on factors influencing working capital generally dealt with internal and exogenous factors together. The present study aims to measure the influences of macro-economic figures on the level of working capital. Exogenous factors were included in the study as macro-economic figures. What makes the present study different from other studies in the literature is the measurement of the influences of macro-economic figures on the level of working capital.

4. Data and Variables Used in the Study

The purpose of this study is to determine the influences of macro-economic variables on the level of working capital. To this end, the year-end financial statement data of 128 companies from the 2003 to 2013 period were used. The year 2003 was taken as the starting point in order to rule out the negative effects of the crisis in 2000 and 2001.

The research sample consisted of 128 companies quoted on stock exchange between 2003 and 2013 among the real sector companies traded at the National Market in December 2014. 11-year data of 128 companies were used, and 1,408 observations were made. The annual balance sheet data of the companies were reached via Finnet Excel Analysis Module (Version 9.2.4.6.).

3 dependent variables were included in analyses: 1) working capital ratio, which represents the level of working capital; 2) return on working capital; 3) cash conversion cycle, which represents working capital management. In determining the dependent variables, an attempt was made to ensure that these variables would represent the level of working capital. Other studies in the literature dealing with this subject were taken as a reference. Similar dependent variables were used in Asmawi and Faridah (2012), Aygün (2012), Abbadi and Abbadi (2012), Doğan and Elitaş (2014), Akbulut (2011), and many other studies. The calculation of the dependent variables and their abbreviations as used in the model are summarized below.

Dependent variables:

1) The Level of Working Capital = Net Working Capital / Total Assets

2) Return on Working Capital = Net Profit / Total Current Assets

3) Cash Conversion Cycle = Days Sales Outstanding + Days Inventory Outstanding – Days Payables Outstanding

8 independent variables were used in analyses. The studies in the literature were taken into consideration in determining the independent variables, and macro-economic variables likely to influence working capital were included in analyses. One of the macro-economic variables included in the study is inflation rate. Change in producer price index was taken as inflation rate. Inflation data were obtained from the webpage of the Central Bank of the Republic of Turkey (CBRT) (www.tcmb.gov.tr). The second independent variable used in the study is foreign exchange rate. USD/TL was taken into consideration as foreign exchange rate. Foreign exchange rate data were taken from the webpage of CBRT (www.tcmb.gov.tr), too. The third independent variable adopted in the study is interest rate. The benchmark interest rates of the Central Bank of the Republic of Turkey were used in the study. The fourth independent variable employed in the study is gross domestic product. The relevant data were also acquired from the webpage of CBRT (www.tcmb.gov.tr). Annual changes in gross domestic product were taken into account in analyses. Another independent variable used in the study is gold prices. The data about gold prices were extracted from the webpage of CBRT (www.tcmb.gov.tr), too. Import and export indices were also taken as independent variables. The relevant data were obtained from the webpage of the Turkish Statistical Institute (www.tuik.gov.tr). The last independent variable of the present study is BIST-100 index, which is the benchmark index of Borsa Istanbul. BIST-100 index data were reached via Finnet Excel Analysis Module (Version 9.2.4.6.).

In determining the independent variables of the study, an attempt was made to choose the macro-economic variables likely to influence the level of working capital. The studies in the literature were taken as reference in determining these independent variables, as in determining the dependent variables. It was tried to obtain more meaningful results by enriching analyses with additional variables such as foreign exchange rate, stock market index, import index, export index, and gold prices in addition to the macro-economic variables used by Doğan and Elitaş (2014), Mohamad and Elias (2013), Taleb et al. (2010), Mansoori and Muhammad (2012), and Büyükşalvarcı and Abdioğlu (2010). The list of the independent variables and their abbreviations as used in analyses are given below.

Independent Variables

1) Inflation = inf
2) Export index = exp
3) Import index = imp
4) Foreign exchange rate = USD/TL
5) Interest rate = int
6) Stock Market Index = BIST100
7) Change in Gross Domestic Product = GDP
8) Gold prices = gold

5. Methodology

The present study attempted to determine the influences of macro-economic variables on working capital through artificial neural network analysis. The literature review shows that artificial neural network analyses have been used in many fields. They have been employed in economic and financial studies, too.

Aygören et al. (2012) attempted to predict BIST-100 index through artificial neural networks. Akcan and Kartal (2011) used artificial neural network method in predicting the prices of stocks of ISE insurance index companies. Similarly, Aktaş (2003) employed artificial neural network method in determining financial failures. Just some of the studies in the literature involving the use of artificial neural network analysis were included in the present study. There was no need to include more.

Artificial neural networks are the computer systems developed for automatically (i.e. without getting any help) performing the skills of creating, producing, and discovering new information through learning, which is one of the qualifications of human brain. (Öztemel, 2003, p. 29) Artificial neurons developed for mathematically modeling the functioning of biological neurons are based on the following assumptions (Hamzaçelebi, 2011, p. 11):

- Information processing consists of simple elements called neurons.
- Signals are transmitted through connections between neurons.
- Each connection between neurons has a weight value.
- The net output of each neuron is obtained by making its net input go through an activation function.

Such features of artificial neural networks as matching, parallelism, learning, and adaptation are used in linear and non-linear processes. Artificial neural networks are algorithmic and non-numeric information processing systems with a feature of parallelism. They simply consist of a lot of internally interconnected elements called artificial neurons (Zurada, 1992, p. 321)

Every input has its own weight value. After inputs are multiplied by their weight values, they are added up. After the threshold value is added to this value, it is subjected to “f” transfer function. In general, log-sigmoid, tan-sigmoid, and linear transfer function types are used as transfer functions.

A backpropagation-based and multilayered network was used in this study. A typical backpropagation network has one input layer, one output layer, and minimum one hidden layer. There is no theoretical limit to the number of hidden layers (Elmas, 2003, p. 70) Scaled Conjugate Gradient (SCG), Brodyen-Fletcher-Goldfarb-Shanno (BFGS), and Levenberg–Marquardt (LM) learning algorithms were used in training our network.

There are various backpropagation methods. The simplest one is gradient descent. In this method, weights are updated oppositely to gradient, which is seen in Equation 1.

$$w(k+1) = w(k) - \eta \nabla J(k) \tag{1}$$

In Equation 1, η is learning coefficient, and $\nabla J(k)$ is the gradient of error in the kth iteration. The selection of learning coefficient is important. When a too small coefficient is selected, too many iterations are needed to diminish the error to the required level. However, when a too big coefficient is selected, necessary values cannot be found, and the network works unstably.

5.1 Scaled Conjugate Gradient (SCG)

Learning coefficient is constant in the gradient descent method, and it is not always the shortest cut of reaching the most appropriate values. In most of conjugate gradient methods, step length is adjusted in every iteration. The error is minimized with a search of conjugate gradient direction. Conjugate gradient methods make a search in every iteration. Thus, the response of the network to inputs has to be calculated for each search over and over. The line search algorithm which causes time delay is not used with the scaled conjugate gradient method.

It employs more iterations in comparison to other conjugate gradient methods. However, the number of calculations considerably decreases in each iteration. In addition, almost the same memory is needed as other conjugate methods (Demuth & Beale, 2002, p. 2).

5.2 Brodyen-Fletcher-Goldfarb-Shanno (BFGS)

The Newton method is an alternative to the scaled conjugate gradient because it finds the most appropriate point rapidly. The basis of the Newton method is given in Equation 2.

$$w(k+1) = w(k) - H_k^{-1} \nabla J(k) \tag{2}$$

In Equation 2, H refers to the Hessian matrix (the second error derivative). The Newton method generally reaches the most appropriate value faster than the conjugant gradient method. However, calculating the Hessian matrix slows down the method for multilayered sensors. The calculation of second derivatives is not necessary in some methods which are based on the Newton method. These methods are called Quasi-Newton methods. In every iteration, approximate Hessian matrix is updated (upgrading is the function of gradient). Among these Quasi-Newton methods, the most successful one is Broyden- Fletcher-Goldfarb-Shanno (BFGS) update.

Though it finds the most appropriate point in fewer iterations in comparison to the conjugate gradient method, it makes more calculation in every iteration and needs more memory (Demuth & Beale, 2002, pp. 2-17).

5.3 Levenberg-Marquardt (LM)

The Newton method is as showed in Equation 3:

$$H(x_k)\nabla P_k = -J^T(x_k).e(x_k) \tag{3}$$

Since it is difficult to calculate the H value, an approximation of H value is used to obtain the Gauss-Newton algorithm illustrated in Equation 3. The Jacobian matrix involves the first derivative of network errors. Thus, calculation can be made through standard backpropagation algorithms that are less complex than the Hessian matrix.

$$J^T(x_k).J(x_k)\nabla P_k = -J^T(x_k).e(x_k) \tag{4}$$

In this equation, J refers to the Jacobian matrix, and e refers to the network error matrix. The Levenberg-Marquardt method gives very fast results if matrix sizes are kept small or inputs are few (Demuth & Beale, 2002, pp. 6-8).

6. Analysis and Findings

As stated in the previous chapter, artificial neural network analysis was used for determining the influences of macro-economic variables on working capital. A separate model was formed for each dependent variable. In this way, 3 separate analyses were made for 3 dependent variables. SPPS 20 (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.) statistical package was used. Evaluation was made through the scaled conjugate gradient method. The analysis results and the obtained findings are given below.

6.1 Analysis for the Level of Working Capital

The artificial neural network graph obtained through the artificial neural network analysis involving 1408 observations and employing the level of working capital as dependent variable is given below.

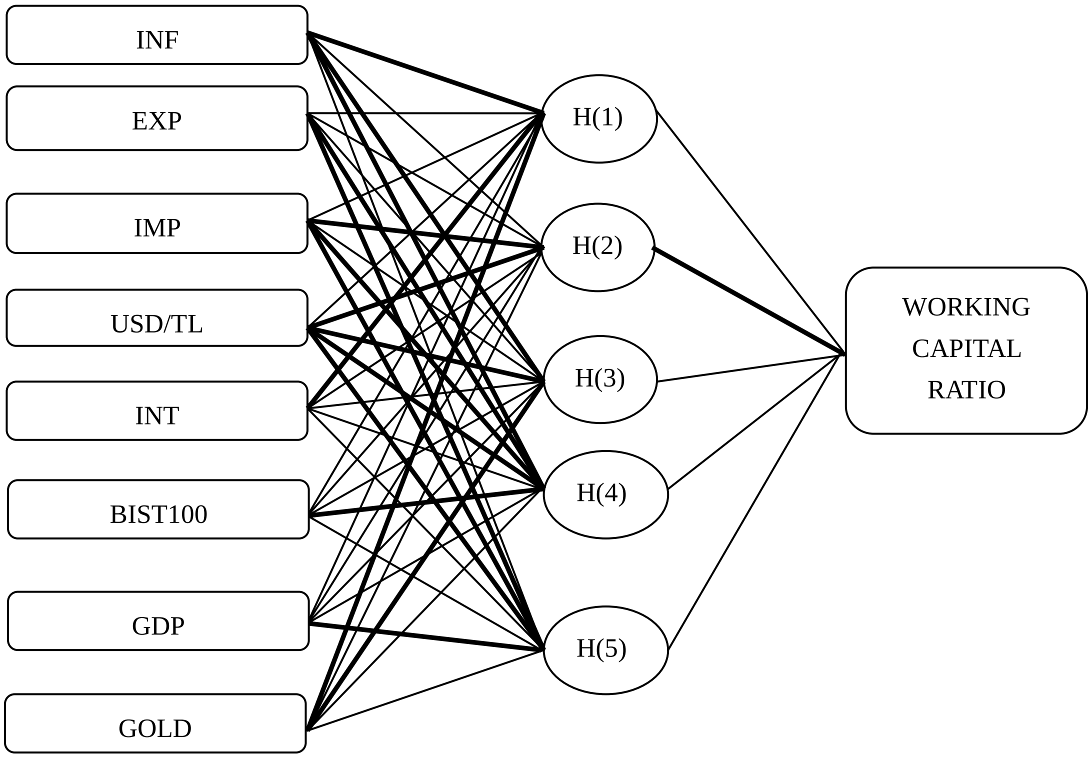

Figure 1. The artificial neural network structure showing the influence of macro-economic variables on the level of working capital

The neural structure used in the model is shown in Figure 1. The model consists of 1408 observation sets about the level of working capital. In the model, hyperbolic tangent was used as hidden layer activation function; identity was used as output layer activation function; and sum of squared errors was used as error function.

Table 1. The importance levels of the variables

Variables	**Importance Levels**
inf	17.50%
exp	100.00%
imp	28.50%
usd/tl	20.00%
int	22.50%
bist100	90.00%
gdp	21.30%
gold	16.30%

The Table 1 summarizes the influences of macro-economic variables on the level of working capital by importance level. The analysis results indicate that the level of working capital is influenced most by export index (100.00%) and then stock market index (90%), import index (28.5%), benchmark interest rate (22.5%), gross domestic product (21.3%), foreign exchange rate (20%), inflation (17.5%), and gold prices (16.3%) respectively. The graph concerning the importance rating of the independent variables is given below.

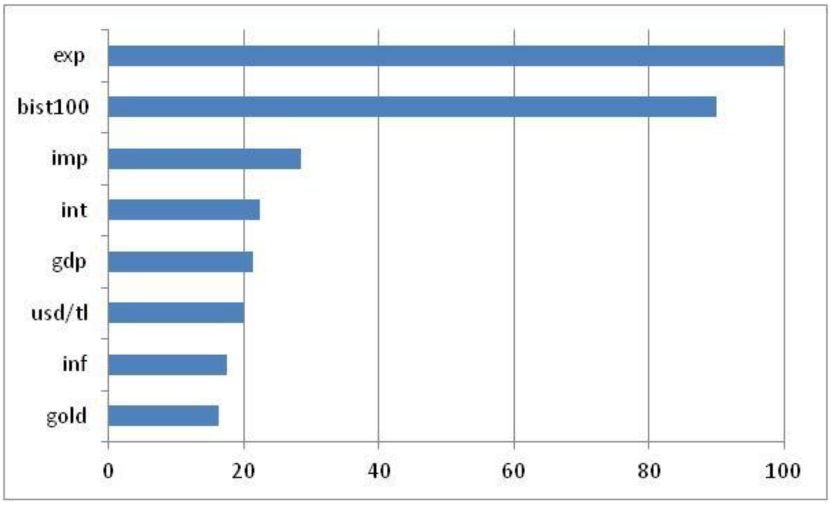

Figure 2. The graph concerning the importance rating of the independent variables

The Figure 2 shows the degrees to what the independent variables influence the dependent variable (from the most important to the least important). In other words, an artificial neural network was developed in order to show the degrees to what the level of working capital is influenced by macro-economic variables (from the most important variable to the least important variable). As it is clear from the Figure 2, the level of working capital of the enterprises included in the research sample is influenced most by export index. It is followed by stock market index. These two variables influence the level of working capital substantially. Other variables influence the level of working capital at normal and similar levels. The variable that influences the level of working capital least is gold prices.

6.2 Analysis for Return on Working Capital

The artificial neural network graph obtained through the artificial neural network analysis involving 1408 observations and employing return on working capital as dependent variable is given below.

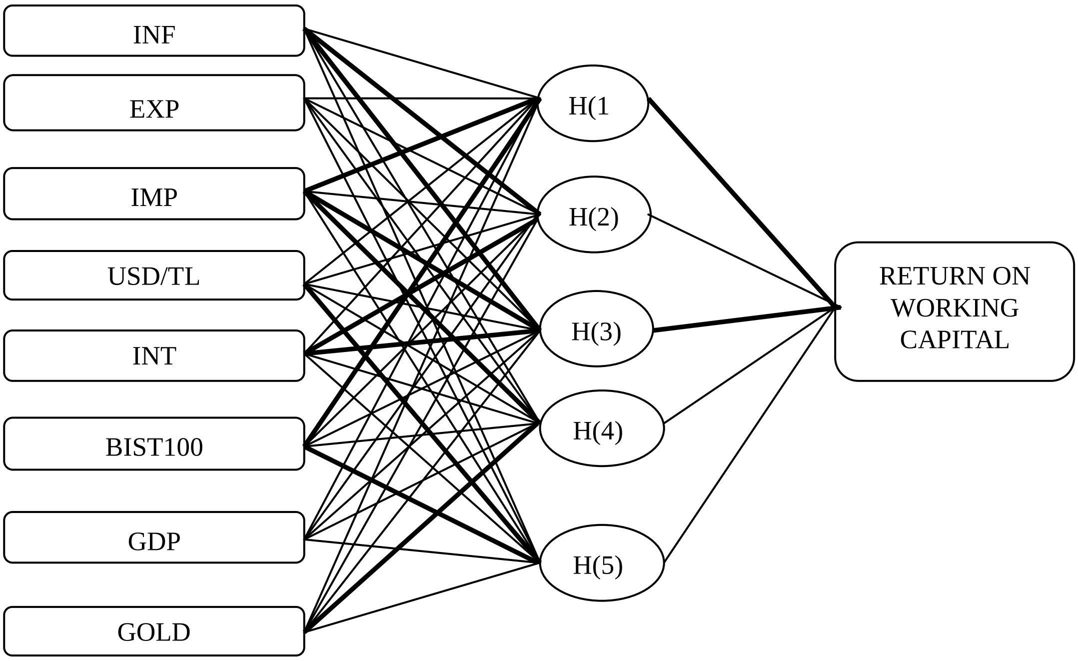

Figure 3. The artificial neural network structure showing the influence of macro-economic variables on return on working capital

The neural structure used in the model is shown in Figure 3. The model consists of 1408 observation sets about return on working capital. In the model, hyperbolic tangent was used as hidden layer activation function; identity was used as output layer activation function; and sum of squared errors was used as error function.

Table 2. The importance levels of the variables

Variables	Importance Levels
Inf	33.80%
Exp	56.00%
Imp	100.00%
usd/tl	22.20%
Int	58.80%
bist100	64.00%
Gdp	43.40%
Gold	53.80%

The Table 2 summarizes the influences of macro-economic variables on return on working capital by importance level. The analysis results indicate that return on working capital is influenced most by import index (100.00%) and then stock market index (64%), benchmark interest rate (58.8%), export index (56%), gold prices (53.8%), gross domestic product (43.4%), inflation (33.8%), and foreign exchange rate (22.2%) respectively. The graph concerning the importance rating of the independent variables is given below.

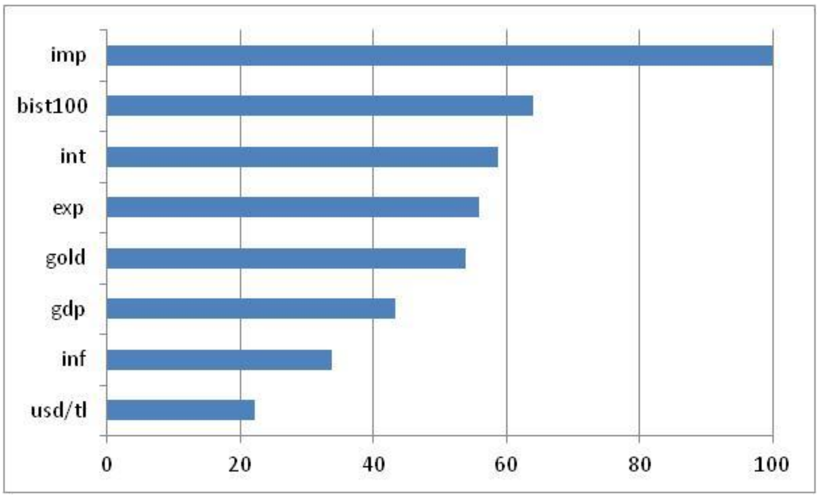

Figure 4. The graph concerning the importance rating of the independent variables

The Figure 4 shows the degrees to what the independent variables influence the dependent variable (from the most important to the least important). In other words, an artificial neural network was developed in order to show the degrees to what return on working capital is influenced by macro-economic variables (from the most important variable to the least important variable). As it is clear from the Figure 4, the return on working capital of the enterprises included in the research sample is influenced most by import index. It is followed by stock market index. These two variables influence return on working capital substantially. Other variables influence return on working capital at high and considerable levels. The variable that influences return on working capital least is foreign exchange rate.

6.3 Analysis for Cash Conversion Cycle

The artificial neural network graph obtained through the artificial neural network analysis involving 1408 observations and employing cash conversion cycle as dependent variable is given below.

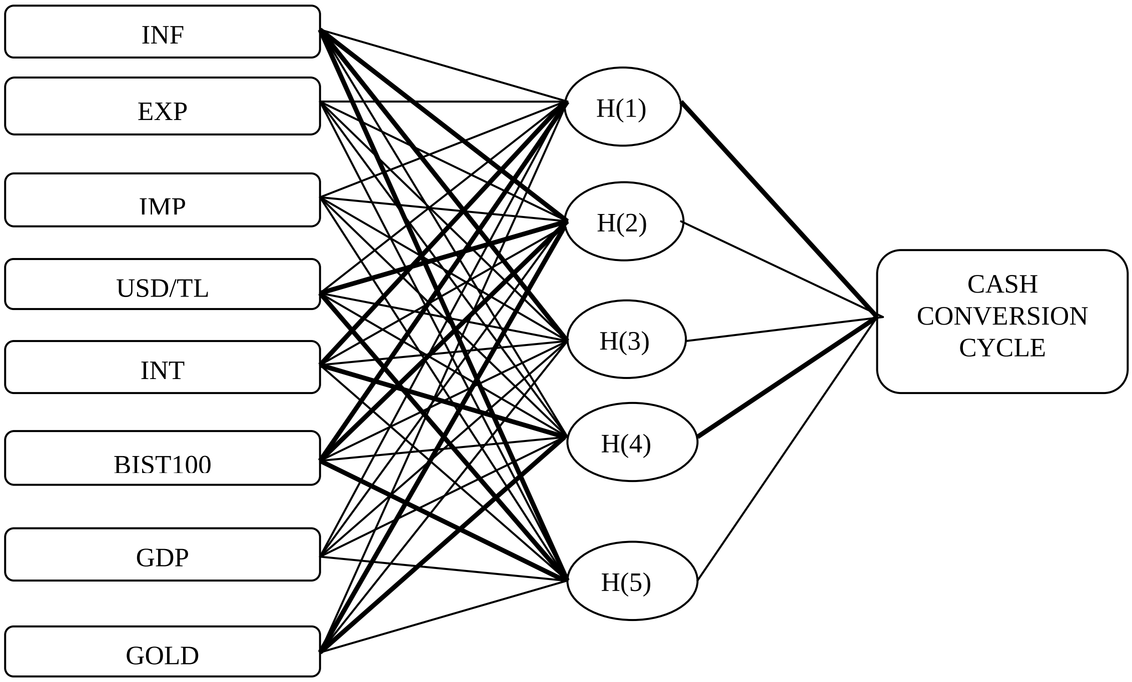

Figure 5. The artificial neural network structure showing the influence of macro-economic variables on cash conversion cycle

The neural structure used in the model is shown in Figure 5. The model consists of 1408 observation sets about cash conversion cycle. In the model, hyperbolic tangent was used as hidden layer activation function; identity was used as output layer activation function; and sum of squared errors was used as error function.

Table 3. The importance levels of the variables

VARIABLES	LEVELS OF IMPORTANCE
inf	48.30%
exp	55.70%
imp	30.00%
usd/tl	79.20%
int	100.00%
bist100	39.40%
gdp	54.00%
gold	86.90%

The Table 3 summarizes the influences of macro-economic variables on cash conversion cycle by importance level. The analysis results indicate that cash conversion cycle is influenced most by benchmark interest rate (100.00%) and then gold prices (86.9%), foreign exchange rate (79.2%), export index (55.7%), gross domestic product (54.0%), inflation (48.3%), stock market index (39.4%), and import index (30%) respectively. The graph concerning the importance rating of the independent variables is given below.

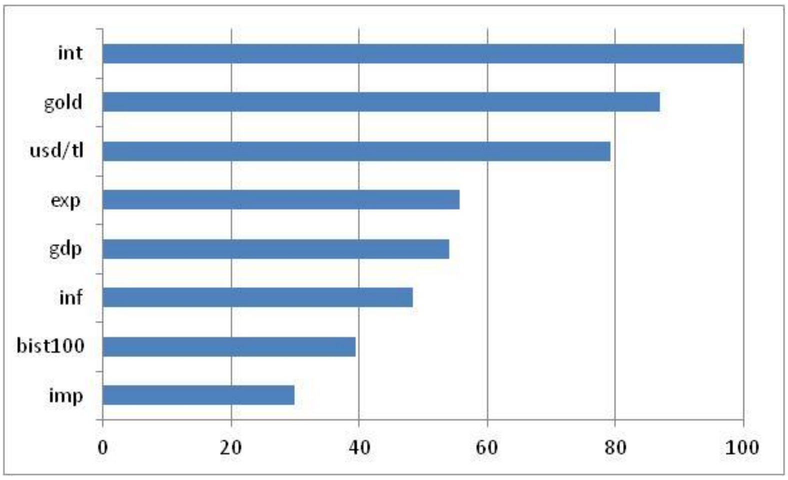

Figure 6. The graph concerning the importance rating of the independent variables

The Figure 6 shows the degrees to what the independent variables influence the dependent variable (from the most important to the least important). In other words, an artificial neural network was developed in order to show the degrees to what cash conversion cycle is influenced by macro-economic variables (from the most important variable to the least important variable). As it is clear from the Figure 6, the cash conversion cycle of the enterprises included in the research sample is influenced most by benchmark interest rate. It is followed by gold prices and foreign exchange rate. These two variables influence cash conversion cycle substantially. Other variables influence cash conversion cycle at high and considerable levels. The variable that influences cash conversion cycle least is import index.

7. General Evaluation and Conclusion

The influence of working capital on an enterprise's profitability and performance is important. The studies in the literature support this view. Aygün (2012) and Akbulut (2011) report that a level of working capital which is higher than it has to be affects a company's profitability and performance negatively. Therefore, it is quite important for the performance of an enterprise that its level of working capital be determined correctly.

A lot of factors are taken into consideration in determining the levels of working capital of enterprises. Surely, internal factors are the most important ones among these factors. However, exogenous factors should also be taken into account in determining the levels of working capital of enterprises. In the present study, the influences of macro-economic variables that are exogenous factors on the level of working capital, return on working capital, and working capital management were examined separately. What makes the present study different from other studies in the literature is that macro-economic variables are used as independent variables and artificial neural network modeling is employed as analysis method. The analysis results are summarized in the table below.

Table 4. Summarized analysis results

The Level of Working Capital		Return on Working Capital		Cash Conversion Cycle	
Variables	**Importance Level**	**Variables**	**Importance Level**	**Variables**	**Importance Level**
Exp	100.00%	imp	100.00%	Int	100.00%
bist100	90.00%	bist100	64.00%	Gold	86.90%
imp	28.50%	int	58.80%	usd/tl	79.20%
Int	22.50%	exp	56.00%	Exp	55.70%
gdp	21.30%	gold	53.80%	Gdp	54.00%
usd/tl	20.00%	gdp	43.40%	Inf	48.30%
Inf	17.50%	inf	33.80%	bist100	39.40%
gold	16.30%	usd/tl	22.20%	Imp	30.00%

As is clear from the table above, working capital ratio, which represents the level of working capital, is influenced most by export index. The second most important variable is stock market index. It is stated in the literature, as mentioned in the literature review chapter of this paper, that an enterprise's level of activity is the most important variable influential on its level of working capital. Thus, it is normal that the level of working capital is influenced most by export level. This finding is consistent with the literature. Since stock exchange index is an indicator of overall economic situation and stability in a country, it is not surprising that it has a high influence on the level of working capital. The fact that the other variables have a low influence on the level of working capital implies that macro-economic variables are influential on the level of working capital, but such influences are not very important.

It is seen in the table above that return on working capital is influenced most by import index and stock exchange index. Like the level of working capital, an enterprise's return on working capital is substantially influenced by its activities and general situation in the country. However, return on working capital is influenced by the other macro-economic variables more in comparison to the level of working capital. Especially benchmark interest rate, gold prices, gross domestic product, and inflation have a big influence on return on working capital.

The table above shows that cash conversion cycle is influenced most by benchmark interest rate, gold prices, and foreign exchange rate. Macro-economic variables are seen to have the highest influence on cash conversion cycle among dependent variables. It is something expected that enterprises take into consideration macro-economic figures in managing the elements of working capital.

All in all, it is realized that macroeconomic variables are influential on working capital; the level of working capital is influenced most by export index and stock exchange index; return on working capital is influenced most by import index and stock exchange index; and finally cash conversion cycle is influenced most by benchmark interest rate, gold prices, and foreign exchange rate. The results of this study are partly consistent with the literature. Mohamad and Elias (2013) concluded that there is a significant relationship between gross domestic product and the level of working capital; Doğan and Elitaş (2014) found out that there are positive, but statistically insignificant relationships between the level of working capital and gross domestic product and interest rate; Mansoori and Muhammad (2012) reported that there is a negative relationship between gross domestic product and working capital management; and Abbadi and Abbadi (2012) determined that economic variables such as interest rate, gross domestic product, and real growth rate have no significant influence no working capital.

The literature does not contain many studies examining the influences of macro-economic variables on working capital. Thus, in this paper, not much comparison can be made with the results of other studies in the literature. However, a big contribution may be made to the literature if more economic variables are focused on; internal factors are examined besides macroeconomic factors; and the relationships between macroeconomic variables and working capital are determined for the companies not traded at the exchange.

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Does Corporate Governance Influences Corporate Financial Performance? Empirical Evidences for the Companies Listed on US Markets

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Abstract

The purpose of the present paper is that of researching the relationship between corporate governance and financial performance, on a sample of 51 companies, mainly from the technology area, listed at NASDAQ and component of the Dow Jones index, during the period 2000-2013. The financial performance has been proxied through return on assets (ROA), return on equity (ROE), return on the invested capital (ROIC), and Tobin's Q ratio (Q). As variables for the corporate governance there have been considered: the characteristics of the board of directors (independence, size, Advisory Committees, and gender diversity); the shareholder structure (the shares of institutional investors and those of CEO); the characteristics of CEO (tenure, age, and duality); the remuneration of CEO (base salary, bonuses, packages with stocks). The estimation techniques used in the empirical analysis have been multivariate regression models based on the method of generalized least squares (GLS), the correction of standard errors for heteroskedasticity using the method of White, and the fixed-effects (FE). The results obtained have highlighted a mixed influence of the corporate governance variables on financial performance (board size, share of women on the boards, the independence of the board), the relationships being influenced also by the perception of the stakeholders. We concluded a positive relationship between ROE and the remuneration of CEO in bonuses, as well as a negative relationship between Tobin's Q ratio and the remuneration of CEO through stocks at the company they manage. The paper highlights, as novelty, elements from behavioral finance in the economic interpretation of the results, following their explanation also from the human nature perspective.

Keywords: corporate governance, financial performance, CEO characteristics, board of directors' characteristics, panel data models

1. Introduction

Bernstein (1996) has managed to comprise in one volume the entire history of risk, seen as in times gone by and as in the modern age. This has shown that in the contemporary world in which the globalization, the Internet, and the technology have monopolized the entire world, the future has become for people more than a 'fantasy of the gods'. The financial markets and especially the capital markets discover better this idea by weighing, assessing, foreseeing, and anticipation, more or less exactly of the future, with the hope for a suddenly win. As in the biblical myths, the human nature and greed, under the auspices of hedging have led to the creation of the derivative financial instruments. Resulted initially from the wish to protect investors, the years 2000 lead to the excessive use of them, determined by a blinding greed impassive before the inevitable. Just like the heroes of the Greeks, the great actors from Wall Street have dared to challenge the gods, more precisely, the gods of the capital markets. If the mythological ones were merciless in anger striking sometimes an entire island, the risk started in 2007 by the subprime crisis, helped by the interdependency of markets, and has been ruthless with the entire world. The globalization has made possible not only for the United States to be hit, but also there have been hit, by the destructive wave of the explosion of property loans, Europe and Asia. Thus, the year 2007 joined the Great Crash from 1929 in the black list of the financial world. Countless companies have disappeared, being geared to this unstoppable maelstrom and the concept 'too big to fail' largely announced by the stock exchange has crashed easily. The most affected ones have been the simple people who have lost their house and jobs. As such, Kotler and Caslione (2009) emphasized that managers must try to be more flexible, robust, and resilient if they want to survive in the new turbulent environment. Also, Turner (2009) points out that 'today a bank could not in a crisis make a call on shareholders without aggravating the crisis'.

One of the main causes that have generated this financial crisis has been the inefficiency of corporate governance or the lack of attention on the rules imposed by it. The purpose followed in the present paper is that of analyzing the impact of corporate governance on the financial performance recorded by the biggest companies listed on the capital market from the United States of America, companies which are part mainly of Dow Jones and NASDAQ (the second largest stock market from the USA as level of market capitalization). We have chosen this market because it has a clear history of the events before and after the crisis, being one of the most translucent and regulated capital markets from the world. Thus, it can be followed in detail the influence of corporate governance and way it has functioned or not on the financial performance under the pressure of the financial crisis. Also, the analyzed companies are in the top of the most efficient American companies, whilst the importance of this paper consists in the attempt to identify the existence of a correlation between corporate governance and the financial strength of them. The novelty brought by the present paper is that it highlights the fact that the largest companies from the American capital market due their financial performance to management, to the business strategy chosen, but also to a certain extent to corporate governance. It is interesting to follow how are implemented the rules imposed by the Corporate Governance Codes and of what impact they have on the financial performance. The present work is focused on the principles of corporate governance on the financial performance of the companies investigated. In this way are examined companies from different domains, but similar as size, financial strength, history, and component of the same stock index.

Another aspect followed is the 'dispersed ownership system' characteristic USA and how it acts on corporate governance. This system is formed by strong securities markets, rigorous disclosure standards, and high market transparency, being a propitious environment for a high level of corporate governance. Other factors that differentiate the corporate governance from USA by other states are liberal economic paradigm, funding based on well-developed capital markets with high liquidity, as well as corporate philosophy in which managers aims to maximize shareholder wealth (Herrigel, 2008). Based on the report of The Brookings Institution (2015), advanced industries reveal a substantial economic anchor for the economy of USA and have led the post-recession employment recovery. Nevertheless, the competitiveness appears to be eroding, but The United States has the most dynamic cutting-edge industries worldwide, behind only energy-intensive Norway. In fact, innovation remains the only lasting source of advantage for firms in the advanced industry sector. The bond between corporate governance and capital markets is also important in the context of bid-ask spreads registered in USA markets. Heflin et al. (2005) empirically investigate the relationship between information disclosure quality and the bid-ask spreads and provide evidence that bid-ask spreads decrease as information quality increases. Even more, some evidence show that companies with a good corporate governance structures tend to have smaller bid-ask spreads. Oppenheimer (1984) examines the performance of Ben Graham's portfolios and emphasizes that one of Graham's maxims on investing was 'defend your shareholder's rights'. Moreover, Oppenheimer (1984) considers that Graham is one of the first proponents of corporate governance. Thus, studying the correlation between financial performance and corporate governance it is a focal point for investors wishing to purchase shares in companies empirically analyzed within current manuscript. Damodaran (2012) finds it difficult to quantify the quality of a company's corporate governance in a valuation model because is no input to take in consideration. On the other hand, Damodaran (2012) believes that corporate governance can be incorporated in assessment of a company's performance if it is included in the balance between value of the company run by the existing managers and value of the company run by an optimal management. At a high level of governance the stock should trade close to its intrinsic value in an efficient market, so in the context of capital markets, empirical studies of these links are of great interest for both investors and shareholders and not at least managers.

The rest of the paper is organized as follows. The second section discloses theoretical aspects of corporate governance in the related literature. The third section presents the hypotheses designed for the empirical research. Section four reveals the description of the selected sample and the employed variables, as well as the empirical methods, whereas empirical findings are shown in section five. The empirical results are compared with previous studies in section six. The last section concludes the paper.

2. Prior Research

USA, together with Great Britain, has the most numerous and ample Codes of Governance from the entire world in number of 16, respectively 44. Although both states have capital markets with history, only in the year 1992 they have introduced the Corporate Governance Codes in the UK and in 1997 in the USA. And yet, the financial crisis started exactly from these states. A cause could be the failure of corporate governance. Thus, it is a reason in addition the analysis of the performance of top companies and their reaction to the devastating 'wave' started by the crisis. The subject has been analyzed by many specialists and the paper tries to identify new effects of corporate governance on the financial performance. In an ideal world, correct, rational, and honest, the corporate governance would not justify its existence, but the history of the capital markets includes numerous examples in which it is more than necessary. The accounting frauds, overestimated compensations, the abuses on the minority shareholders, and many other financial violations obliged later the creation of some Codes of Corporate Governance. Monks and Minow (2004) consider that only in 2002 the corporate governance has proved its importance after there had taken place 12 of the biggest bankruptcies from the history of USA, these being followed by losses of billions of dollars from the money of the shareholders, the increase in the number of unemployed persons, and many directors being arrested. Among the companies targeted we found Enron, Tyco, Adelphis, and WorldCom. Monks and Minow (2004) mention that after these events the corporate governance has been in the spotlight. Everybody whished it from NYSE and NASDAQ which imposed it to companies in order to list their shares, to the rating agencies which have not foreseen the disaster that was about to take place. Monks and Minow (2011) define corporate governance as a mean of reducing the agency cost and implicitly of the asymmetry of information. They consider it a way of preventing the agency risk which can affect the shareholders through the manager's decisions, but at the same time, the community. Moreover, corporate governance was defined as a method of control and inspection in order to maintain a favorable frame for creating value by companies. We consider that corporate governance is not a Cerberus at the gates of the company, but it is rather a guardian angel which guides the company to the right path-the correct way.

The corporate governance does not follow the asymmetry of information that appears in the relationship shareholder-manager, but it has the role of guardian of investors, suppliers of finances for companies, so that they will be remunerated correctly for the investment realized (Shleifer & Vishny, 1997). Lee at al. (2013) argues empirically the fact that through a well applied corporate governance it is reduced the information asymmetry between shareholders and managers. The agency theory in the context of corporate governance is mentioned also by Lambert (2001). Athanasoglou et al. (2008) find no evidence in support of the traditional structure-conduct-performance (SCP) hypothesis. Chang et al. (2008) prove that the mechanisms of corporate governance can mitigate agency problems between managers and shareholders, and thus can diminish agency cost. Haldane (2011b) describes the concept 'too big to fail' which has worked in the banks before the crisis of 2007, mentioning that those big companies with renown, considered to be part of the category mentioned, have seen corporate governance and the measures of risk control as being ridiculous. Haldane (2011b) also refers to another factor precursory to the crisis and that is 'myopia loop' which acted in the banking system of the USA. It manifests through the fact that the managers of those banks had taken decisions which had had apparently positive effects on short term, but which on long term affected the financial performance. Thus, managers were stimulated to increase this indicator 'adjusting' the financial accounting statements which lead to the appearance of the agency problem. The situation has been amplified also by the fact that the respective managers were remunerated according to ROE, fact that amplified taking some decisions more and more risky and with negative effects on long term. According to DeYoung et al. (2013), the CEOs of the banks have been stimulated through remunerations based on the yield came from the derivative instruments. Fahlenbrach and Stulz (2011) give as example of this type of managers that have risked everything on the leverage effect of ROE which had the role of overestimating the wins and implicitly of own remunerations in the period of the economic boom. Among them we find Dick Fuld (Lehman Brothers), James Cayne (Bear Stearns), Stan O'Neal (Merrill Lynch), and John Mack (Morgan Stanley) (Fahlenbrach & Stulz, 2011). In the Corporate Governance Code of USA published in 2012 it is provided that directors will be remunerated according to the performance of the company, but it should not be an excessive remuneration that will go beyond the limits of rational and also to be efficient from the fiscal point of view. In order to prevent such situations, Walker (2009) appeals to corporate governance and suggests an expertise of the board of companies by using performance grounds, but also a mandate from the Risk and Audit Committees. Walker (2009) says that the number of non-executive directors from the companies guilty for the crisis has been correct. The conclusion is that under the mirage of the exaggerated wins based on the leverage effect, the members of the board of the respective companies have simply put aside and ignored the corporate governance and the risks blinded by greed.

Linck et al. (2008) stated that board structure across corporation is consistent with the costs and benefits of the board's monitoring and advising roles. Hortsmeyer (2011) highlighted that large Nominating Committees are associated with lower levels of outside director turnover. In another paper, Haldane (2011a) suggests as means of measuring a company by passing from ROE to ROA. The return on assets does not present the disadvantage of being overestimated by the leverage effect and does not limits to owner's equity. ROA includes in this way an overall image of the balance sheet and of the financial performance and is adjusted better at risk. The report of

Investor Responsibility Research Center Institute (IRRCi) realized in 2014 for companies part of S&P1500 shows that 63% from the remuneration of executive directors of these companies is based on the size of the company, the industry it is part of, and other such elements. From the directors analyzed, over 90% are remunerated from the accounting results obtained in less than three years. Thus, it is not surprised the impact of their decisions for the investments realized or the decisions concerning human capital for research and development which requires a longer time to see if they were either or not profitable. Only 12% from the value of is based on performance indicators as turnover, total shareholder return, net profit, and return on invested capital and are correlated with the expectations of increasing the value on long term. The new Code of Corporate Governance of United States of America from 2013 suggests as the remuneration of managers to be realized according to more performance indicators which shall reflect the company strategy on long term. To this principles is added the idea that the remuneration must be done if it creates value in the company at a minimum cost so that to be reflected by the concept of 'downside risk'. The Code provides that the performance indicator chosen in order to index the remunerations of the directors to be hard to manipulate as to avoid the situation prior to the crisis. At the same time it includes the idea that the directors must be rewarded also in shares of the company they manage as to align its own interests with the interests of the shareholders they represent and implicitly with the company interests. The value of the shares package they have the right to own should not exceed the maximum of six times the salary in the case of CEO. Kashyap et al. (2008) suggest a new vision on corporate governance. They consider that the financing and risk management decisions are resolutions of the board and of shareholders which decide according to the cost-benefit analysis and are not decisions taken by the financial department. In this way, trough the resolutions taken by the directors of the companies guilty for the crisis of 2007 it can be considered that corporate governance has affected the financial performance of the respective companies.

Although it is a relative recently appearance in the economic and financial world through its implications, the corporate governance has managed to generate the interest of many scientists and personalities so that the related literature includes many works on this theme. In the present paper we have concentrated on the relationship between corporate governance and financial performance. Among the authors who had studied this problem we can enumerate Shleifer and Vishny (1997), La Porta et al. (1999), Drobetz et al. (2003). For the part of governance these include mainly characteristics of the board. Adams and Ferreira (2007) consider that the board has two attributions of monitoring and guidance of the direction the company is heading to. Boone et al. (2007) analyze this connection starting from two hypotheses regarding the board of a company. The first hypothesis starts from the idea that the board is inefficient and must be regulated in order to increase the financial performance of a company. The second hypothesis tested considers the board as part in the company, but which must be structured according to the characteristics of the company and of the business environment in which they activate for a higher performance. Moreover, Boone et al. (2007) conclude that for the companies analyzed the board has been adjusted in order to respond efficiently to the characteristics of the companies they had led not through a mechanic manner according to the Code, but dynamically through management strategies which took into account also the costs of monitoring managers. In this is way, their companies have become more productive and implicitly more competitive through the reduction of agency costs (Jensen & Meckling, 1976). Jensen (1993) argues that a proactive board has an important role and it actions when the company faces financial problems. Thus, the company has corporate governance which leads to an improvement of the financial performance.

Another direction from literature is that concerning the size of the board. Lipton and Lorsch (1992) sustain that a large size of the board presents more disadvantages than advantages, fact that affects the financial performance of the company. They consider that a number of 8-9 members are enough for a company to be efficient. Klein (1998) considers that a large board indicates the presence of a well-defined organizational structure. The idea of a negative correlation between the size of the board and the company performance is sustained also by Haniffa and Hudaib (2006), Hermalin and Weisbach (2003), and Yermack (1996). The positive correlation between the size of the board and financial performance is found in the studies of Adams and Mehran (2005), Dalton and Dalton (2005). Linck et al. (2008) show that a decrease of the size of the board for larger companies and an increase of the non-executive members occurred. This aspect can be put on the account of a better compliance with the provisions of the Corporate Governance Code.

Another aspect as regards corporate governance, intensively found in the related literature is the role of non-executive members (independent directors). Appreciated by Fama and Jensen (1983) on the ground that the non-executive members bring a new expertise which improves the performance of the company, this role is contradicted in recent works (Ozkan, 2006). Important studies concerning the independent board have been performed also by Weisbach (1988). Al-Najjar (2014) says that prior literature analyzed the relationship between corporate governance and financial performance starting from three indicators: ROA (returns on assets), ROE (return on equity), and indicators of market analysis as market-to-book ratio. The author studies the performance of tourism companies depending on the size of the board and its independence, but also at the same time with the economic situation of the industry in which activate the respective companies. The results of the study show that the role of independent non-executive members is statistically significant on profitability indicators ROA, ROE, and on the market performance indicators. Lasfer (2006) provides support for a strong negative relationship between the level of managerial ownership and corporate governance factors, such as dividing the roles of the CEO and the Chairman, the proportion of non-executive directors, and the appointment of a non-executive director as a Chairman.

Relevant to the size of the board, Al-Najjar (2014) has gathered results somewhat contradictory. Hillier and McColgan (2006) find that boards transform more readily in reply to changes in managerial control, equity issuance, and corporate performance, than changes in the firm-specific operating environment of corporations. Sierra et al. (2006) consider that a large board influences positively the financial performance of the company, but a smaller board has a better impact on the market indicators. The results are a proof that the corporate governance influences positively the financial performance of a company if it is sustained by the macroeconomic conditions of the area of activity. De Andres and Vallelado (2008) investigate the influence of the board on the performance of the companies from the banking system out of the USA and other countries, and discover also that a large board is reflected also in the growth of the financial performance (ROA, ROE, Tobin's Q) if it takes into account the structure of the shareholders. Chen (2010) provides evidence that both the effects of change in the state of economy and tourism growth are significant explanatory factors of occupancy rate, providing important information for government tourism policymakers and tourist hotel owners and managers.

Another interesting subject found in the literature that explores corporate governance is the women's share in management positions and in the structure of the board. Numerous studies have been performed on this topic; among them we can mention Kent and Moss (1994) or Ruderman et al. (2002). According to a report realized by GMI rankings (2012) for companies from the United States of America, part of S&P1500, only 12.6% from the members of the board were women. Dwyer et al. (2003) consider that the board diversity according to gender leads to an improvement of the financial performance especially at growing companies. Fischer et al. (1993), as well as Robb and Watson (2012), although they belong to different thinking directions (liberalism/feminist socialism announced by Black, in 1989), still sustain the idea that companies lead by women have nothing less from the point of view of financial performance, than those managed by men. However, Shrader et al. (1997) do not conclude any statistically significant relationship between the percentage of women in the upper echelons of management and firm performance. Adams and Ferreira (2009) consider that women are more likely to join monitoring committees of companies. Jianakoplos and Bernasek (1998) sustain the fact that women are more risk adverse than men. The idea is taken also by Khan and Vieito (2013) who have shown that companies with women CEO have taken less risky decisions and have had higher financial performance taking as proxy in model ROA. Carter et al. (2003) find a positive relationship between women's share on the board and the performance indicators ROA and ROE. Brett and Stroh (1999) consider that women in management positions have a better motivation and inspiration role for subordinates. There is considered that women have a different vision and can bring new ideas that will lead to a growth of the company value. Huse and Solberg (2006) notice the fact that women are less listened in taking decisions and that most of the times are accepted women on the board only as image and best practices exercise. The authors name these cases as 'tokenism' practices. Konrad and Kramer (2006) sustain that this practices can be eliminated if there are more than three women members on the board.

3. Hypotheses Development

The main purpose of the present paper is that of researching the relationship between corporate governance and financial performance for companies from the technologic sector listed on NASDAQ. Starting from the models found in the related literature, we have established the following hypotheses for the empirical research:

- **Hypothesis 1 (H_1):** The existence of a negative correlation between the number of non-executive members and the financial performance of the company (Erkens et al., 2012; Guest, 2008; Metrick & Ishii, 2002; Yermack, 1996; Hermalin & Weisbach, 1991);
- **Hypothesis 2 (H_2):** The existence of a positive correlation between the size of the board, measured trough the number of directors, and the financial performance (Al-Najjar, 2014; Dalton & Dalton, 2005; Adams & Mehran, 2005);

- **Hypothesis 3 (H_3):** The existence of a positive correlation between the share of women on the board and the financial performance (Vintilă et al., 2014; Fidanoski et al., 2014);
- **Hypothesis 4 (H_4):** The existence of a positive correlation between the age of CEO and the financial performance (Bhagat & Bolton, 2008);
- **Hypothesis 5 (H_5):** The existence of a negative correlation between the tenure of the CEO and the financial performance (Berger et al., 2012; Horstmeyer, 2011; Dikolli et al., 2011; Boond et al., 2007);
- **Hypothesis 6 (H_6):** The existence of a positive correlation between the percentage of shares possessed by the CEO and the financial performance (Bhagat & Bolton, 2008);
- **Hypothesis 7 (H_7):** The existence of a positive correlation between the share of institutional investors on the board and the financial performance (Myners, 2001);
- **Hypothesis 8 (H_8):** The existence of a negative correlation between the duality of CEO and the financial performance (Erkens et al., 2012);
- **Hypothesis 9 (H_9):** The existence of a positive correlation between the CEO remuneration (salary, bonus, stock packages) and the financial performance (Bhat et al., 2006; Perry, 2000);
- **Hypothesis 10 (H_{10}):** The existence of a positive correlation between the presence of Risk Committee, among the Audit, Nomination, Remuneration Committees and the financial performance.

4. Data and Research Design

4.1 Sample Selection and Variables Description

As we have mentioned, our aim is to empirically investigate the influence factors from the area of corporate governance on the company financial performance. The purpose of the empirical analysis is that to notice if the firms listed on NASDAQ and part of Dow Jones, due their financial position exclusively to the activity performed or/and in a certain extent to corporate governance. Also, through this study it can be noticed how much do the most powerful American companies respect the Code and rules of corporate governance. The period analyzed covers the time interval 2000-2013, being comprised not only the initial period of using corporate governance, but also the period after the crisis of 2007 when the governance has become a necessity. The companies analyzed are in number of 51 being mainly part of the Dow Jones index, but also are traded on the NASDAQ market. Among the companies we underline Coca Cola, McDonald's, as well as Nike, which do not belong to the technology area, but which through their financial strength owned are similar to the companies from this area. However, course of actions are interdependent, so that we have preferred not to drop such corporations from the explored sample. There should be mentioned that we have excluded companies from the financial area such as Goldman Sachs, JP Morgan, and Visa. We have introduced for comparisons also smaller companies that are part from the same area of activity with the main American companies. Thus, we can analyze how corporate governance actions from the largest companies to the smaller one with the hope that there will appear differences or new signs which had not been analyzed in the previous studies.

The data have been taken and processed after the database of the Thomson Reuters Eikon platform. The database is formed not only from accounting documents, but also from documents which include the shareholders' structure and other information necessary for carrying out the corporate governance variables. We have used for the construction of some corporate variables the sites belonging to each company.

Table 1 describes the variables employed within current empirical research. The analysis has at base four dependent variables which represent the profitability and performance indicators (ROA, ROE, ROIC, Tobin's Q). In the studies analyzed we do not find ROIC, but it has been desired to be a novelty element that shows how the company invests the money. Attracting the resources borrowed without generating the growth of the operating results would generate a decrease of ROIC. It does not depend necessarily on the indebtedness degree so it does not influence directly the effective rate, but it is higher than the cost of capital (WACC) then the company has brought value added to investors. Tobin's Q is higher when the market is efficient and it shows if a company is attractive to investors. We have used it because it appears in numerous studies concerning the relationship between governance and performance and it is different to ROA/ROE because it is an indicator based on the market value.

As independent variables we have used corporate governance variables, found in many studies, as the board size (BS), the board independence (BI), the share of women on the board, salary and rewards received by the CEO, ownership of CEO, CEO age, and CEO tenure. We have used the dummy variables to show the structure of the committees existent at the level of the company and if the CEO is also Chairman in the company.

Table 1. Description of the variables

Variables	Description
	Financial Performance Variables - Dependent Variables
ROA	**Return on Asssets** computed as *Net Income/Total Assets*. ROA measures the efficiency of allocating capital in fixed assets and net current assets. It expresses the manager's capacity of managing the economic assets invested by the stakeholders in order to generate useful resources.
ROE	**Return on Equity** computed as *Net Income/Total Equity*. ROE shows the company performance from the shareholders perspective. It expresses the capacity of distributing the dividends and of increasing the reserves.
ROIC	**Return on Invested Capital** computed as *EBIT(1-τ)/Total Equity + Total Long Term Debt*. ROIC does not depend on the indebtedness degree so it does not influence directly the effective rate only if it higher than the cost of capital than the company has brought value added to investors.
Q	**Tobin's Q Ratio** computed as *The market value of the company/Total assets*. Q shows the ratio between market value of assets (market capitalization+ debts) and the replacement cost.
	Corporate Governance Variables - Explanatory Variables
Variables towards characteristics of the Board of Directors	
BI	**Board Independence**. Shows the share of non-executive directors on the board.
BS	**Board Size** computed as *ln(The total number of executive directors + Non-executive directors)*. BS shows the number of the directors on the board.
WB	**Women on Board**. It represents the share of female gender members in the total number of the board members.
RC	**Risk Committee**. It is a dummy variable equal to 1 if there is a Risk Committee and equal to 0 if there is not a Risk Committee together with the Audit, Nomination, and Remuneration Committees.
BC	**Board Committee**. It is a score/rating which takes values from 0 to 4, where the values express the number of Advisory Committees (Audit, Compensation, Governance, and Nomination).
Variables towards Ownership Structure	
IO	**Institutional Ownership**. Shows the percentage of stocks owned by the institutional investors in a certain company.
CEOH	**CEO Holdings**. Represents the percentage of stocks possessed by the CEO.
Variables towards CEO Characteristics	
CEOT	**CEO Tenure**. The number of years since the CEO is leading (tenure).
CEOA	**CEO Age**. The age of CEO.
CEOD	**CEO Duality**. Is a dummy variable equal to 1 if the CEO is Chairman of Board and 0 if he is not.
Variables towards CEO Remuneration	
CEOS	**CEO Salary** computed as *ln(Basic Salary - Salary without compensation)*.
CEOB	**CEO Bonus** computed as *ln(Bonus Salary - Bonuses and compensations)*.
CEOSA	**CEO Stock Award** computed as *ln(Compensations in stocks)*.
	Firm-Level Control Variables
FS	**Firm Size** computed as *ln(Total Assets)*. Represents the size of the company.
LEV	**Leverage Ratio** computed as *Total debt/Total Equity*. Shows the company capacity of performing long term obligations. The pecking order theory suggests that profitable companies have a smaller leverage. The leverage is a structure rate of capital (indebtedness ratio).

The institutional investors (IO) are important not only through the size, but also through their ownership and through the fact that they are a means of defending the minority stockholders. Being some of the members that participate and vote in the major decisions taken by the company it influences the impact of corporate governance and as a consequence they must be included in any econometric model that studies corporate governance (Black, 1998). Nesbitt (1994) shows that the returns of the stocks are growing at the companies in which large pension funds invest in. The return indicators calculated are influenced by many factors so that we have used as independent variables of control the size of the company (FS) and LEV which show the company capacity to realize its long term obligations. Due to adverse selection, Myers (1984) stated that firms prefer internal to external finance. In fact, when outside funds are necessary, corporations choose debt to equity because of lower information costs associated with debt issues.

4.2 Empirical Specification

Al-Najjar (2014) considers that the panel data are not the most suitable for the econometric analysis because the corporate governance factors do not change considerably during the time. Al-Najjar (2014) has used in his study the modeling of cross sectional time series. Petersen (2009) argues that the standard errors are adjusted so that they eliminate the cases in which there correlated between companies along time, which would make them biased so to loose from precision. Coles et al. (2005) attract the interest that in the econometric estimation of the relationships between the corporate governance and the financial performance of the companies there can appear the endogeneity problem. Thus, the variables analyzed can be correlated between them and it is proposed the estimation method of type 2SLS (Two Stage Least Squares). We have developed two econometric models of panel data type which follow the influence of corporate governance factors (independent variable) on the financial performance (ROA, ROE, ROIC, Q) during the period 2000-2013. Each model includes 51 companies.

The specification of each econometric model is described below:

$$Performance_{it} = \alpha + \beta_1 \times FS_{it} + \beta_2 \times BI_{it} + \beta_3 \times WB_{it} + \beta_4 \times CEOD_{it} + \beta_5 \times CEOH_{it} + \beta_6 \times CEOA_{it} + \beta_7 \times CEOT_{it} + \\ + \beta_8 \times RC_{it} + \beta_9 \times BC_{it} + \beta_{10} \times BS_{it} + \beta_{11} \times LEV_{it} + e_{it} \quad (1)$$

$$Performance_{it} = \alpha + \beta_1 \times CEOS_{it} + \beta_2 \times CEOB_{it} + \beta_3 \times CEOSA_{it} + e_{it} \quad (2)$$

Where α is the intercept and represents the variance of the dependent variable when the independent variables are equal to 0. It quantifies the influence on financial performance of all the variables unlisted in the model through the independent variables already chosen.

The OLS estimation assumes that all observations have the same error variance and that errors are independent (are not autocorrelated). Unfortunately, in the panels' case these rules are not respected because we discuss about different variables (such as different companies) with different rules. In order to eliminate the impact of econometric elements that affect usually the results, heteroskedasticity, multicollinearity, autocorrelation of errors in estimating OLS, we have employed multivariate regression models with fixed effects (FE), the method of the generalized least squares (GLS), and the correction of standard errors for heteroskedasticity using White method. These options have the function to stabilize the model, to reduce the standard errors, and implicitly of increasing the confidence level associated to coefficients. The estimation of the GLS has the role of producing estimators of type Best Linear Unbiased Estimators (BLUE). BLUE is interpreted through the fact that the estimators α and β give real values for the model parameters and that they are the best unbiased linear estimator. Gujarati (2004) considers that the GLS estimation is used if there is heteroskedasticity in the data in order to eliminate. Also, Gujarati (2004) considers that the presence of heteroskedasticity can be checked intuitively in some cases and if are taken smaller, medium, and large companies it is more likely to exist. In the present paper we have mixed companies of different sizes in order to notice the impact of corporate governance and depending on the size of the company. There can be unique constant variables for each company that we have not introduced in the model. The economic reality says clearly that there exist such variables and in order to compensate their lack we can use fixed effects that allow a better estimation of the OLS. For the robustness of the estimation we must ensure that the fixed effects have the sense to be used and we can check this fact by using the redundant fixed effects-likelihood ratio. The fixed effects allow the intercept to modify from an observation to another as to catch those unique characteristics. A disadvantage would be that this method absorbs many degrees of freedom. If the p-value associated to the test is less than 5%, then we can use the fixed effects. Another way we can ensure that the fixed effects are good is to apply to an estimation with random effects the Hausman test which is of type chi-squared. If the p-value obtained is less than 5%, it indicates the fact that it must be renounced at the model with random effects in favor of the one with fixed effects.

5. Research Findings

5.1 Descriptive Statistics

Table 2 provides descriptive statistics and Table 3 shows the Pearson's correlation coefficients. For estimations we have used the soft Eviews 7. For the total number of 700 observations, we can notice that the board size varies between 12 and 32 members.

Table 2. Descriptive statistics

Variables	Minimum	Maximum	Mean	Median	Std. Dev.	No. Obs.
ROA	-0.67	0.47	0.12	0.12	0.11	700
ROE	-0.92	0.32	0.18	0.18	0.20	700
ROIC	-0.91	0.45	0.11	0.11	0.11	700
Q	-0.08	12.82	0.58	0.00	1.64	700
BI	0.00	0.77	0.03	0.00	0.12	700
BS	1.95	16.00	3.07	2.89	1.62	700
WB	0.00	0.42	0.01	0.00	0.06	700
RC	0.00	1.00	0.01	0.00	0.08	700
BC	0.00	4.00	3.49	4.00	0.93	700
IO	0.00	0.93	0.05	0.00	0.19	700
CEOH	0.00	0.67	0.07	0.00	0.29	700
CEOT	0.00	26.00	2.29	0.00	4.63	700
CEOA	46.00	76.00	22.18	0.00	27.77	700
CEOD	0.00	1.00	0.27	0.00	0.44	700
CEOS	8.85	20.05	13.17	13.51	2.63	700
CEOB	0.00	16.52	7.14	10.00	6.90	700
CEOSA	0.00	17.36	5.25	0.00	6.99	700
FS	4.18	20.50	14.96	16.43	4.14	700
LEV	-5.81	18.85	0.66	0.28	1.27	700

Source: Author’s computations.

Table 3. The Pearson correlation matrix

Variables	1	2	3	4	5	6	7	8	9	10
1. ROA	1									
2. ROE	0.496	1								
3. ROIC	0.869	0.652	1							
4. Q	0.356	-0.069	0.245	1						
5. BI	-0.283	-0.086	-0.280	0.004	1					
6. BS	-0.225	-0.100	-0.218	0.073	0.146	1				
7. WB	0.137	0.164	0.204	-0.003	0.103	0.054	1			
8. RC	-0.201	0.013	-0.037	0.047	0.170	-0.025	0.178	1		
9. BC	0.016	-0.066	0.007	0.034	0.153	0.061	-0.180	0.062	1	
10. IO	-0.045	-0.211	-0.118	0.274	0.273	0.156	-0.179	0.097	0.562	1
11. CEOH	0.159	-0.095	0.015	0.026	0.042	-0.066	-0.096	-0.039	0.098	0.128
12. CEOT	-0.295	-0.278	-0.332	0.160	0.085	-0.135	-0.260	0.148	0.136	0.193
13. CEOA	-0.002	0.026	-0.030	-0.030	0.128	-0.247	0.034	0.080	-0.092	0.087
14. CEOD	-0.293	0.046	-0.212	-0.196	0.169	-0.190	0.106	0.217	-0.232	-0.182
15. CEOS	0.054	0.190	0.052	-0.194	-0.028	0.004	0.054	0.028	0.029	-0.179
16. CEOB	0.006	0.078	0.012	-0.133	0.179	-0.092	0.062	0.324	0.004	0.042
17. CEOSA	-0.013	0.102	-0.002	0.143	0.138	-0.123	0.250	0.249	-0.122	0.026
18. FS	0.013	0.397	0.118	-0.755	-0.092	-0.099	0.181	0.051	-0.004	-0.284
19. LEV	-0.170	0.187	-0.160	-0.091	-0.057	0.024	-0.085	0.560	0.052	0.018

Variables	11	12	13	14	15	16	17	18	19
11. CEOH	1								
12. CEOT	-0.034	1							
13. CEOA	0.123	0.329	1						
14. CEOD	0.137	0.125	0.355	1					
15. CEOS	-0.053	-0.037	-0.133	0.063	1				
16. CEOB	0.101	-0.094	0.265	0.347	-0.085	1			
17. CEOSA	-0.168	0.252	0.302	0.360	-0.185	0.390	1		
18. FS	-0.120	-0.260	0.095	0.162	0.413	0.289	0.130	1	
19. LEV	-0.057	0.216	0.119	0.175	0.114	0.196	0.176	0.194	1

Source: Author's computations.

The CEO age varies between 46 and 76 years (stock symbol EPIQ) and the most time someone has had the position of CEO had been for 26 years (EPIQ). Interesting to follow is the share of the women in the total members of the board (WB). This share has a variation increased from 1.3% to 42% recorded by Procter & Gamble Company. The share of the institutional investors is important and it can be noticed that it varies from 0% to 93% for the company LamResearchCorp.

The correlation matrix is used usually for the econometric analysis of multicollinearity. As regards the interpretation of the values related to the correlation matrix, it can be noticed that there exists a powerful positive correlation (the correlation coefficient is close to 1 in some cases) between ROA, ROE, and ROIC. In fact, we notice an obvious correlation since all the indicators are calculated similarly, but these variables are not employed in the same regressions, so we can consider that they does not influence the empirical results. Another correlation, but not high, is found between CEOA and CEOT, fact expected since these variables are interrelated. Powerful negative correlations (value close to 1) do not exist.

5.2 Econometric Results

Model 1. We followed the impact between board of directors' characteristics, ownership structure, CEO characteristics, and financial performance. As we have mentioned in the previously sections, we have used in the estimation process the simple variant OLS, but also the generalized method of the least squares (GLS).

Table 4 discloses the output of redundant fixed effects tests and correlated random effects-Hausman test. As such, we have used as well fixed effects (FE) as a consequence of the results of the aforementioned tests which sustain the use of these effects.

Table 4. Redundant fixed effects tests and correlated random effects–Hausman test

Test cross-section fixed effects			
Effects Test	**Statistic**	**d.f.**	**Prob.**
Cross-section F	7.574138	(49,638)	0.0000
Cross-section Chi-square	320.955821	49	0.0000
Test cross-section random effects			
Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
Cross-section random	3.414122	12	0.9918

Source: Author's computations.

An important characteristic is that related to dispersion. The smaller it is, the higher is the relevancy of this indicator and the trust we give in the statistical inference. The degree of confidence associated with the coefficients is given by their standard error (SE). The results obtained for Model 1 with the dependent variable ROA, present standard errors that sustain a high relative confidence degree which can be associated to the coefficients. Andrei and Bourbonnais (2008) recommends an inferior limit of the ratio significance interval of 0.15 which is being exceeded for all the estimation options. The models can be considered valid although the values are low than 50%. The t-Student test must have an associated p-value less than 5% in order to be statistically significant. The probability associated to the F test is null so it can be accepted the validity of the model for a confidence interval of 95%. The consequences of ignoring the autocorrelation are similar with those of ignoring the heteroskedasticity. The coefficients estimated through OLS are unbiased, but they are not BLUE and thus are ineffective. It can be battled by estimating GLS.

Table 5 shows the estimations related to the first model when ROA was employed as independent variable and Table 6 summarizes the sign of the relationships reported in Table 5. A positive influence has been found in variables RC, FS, WB, CEOA, and CEOH. The presence of the Risk Committee, although it is rare, has been expected to have a positive influence on ROA, performance indicator which shows if the manager has the capacity to manage more efficient the company's assets. Through the presence of this committee are monitored the decisions that could influence the company performance and it prevents risky situations. The size of the company influences ROA, but it must be mentioned that the influence can be both positive, as well as and negative. Nicodème (2007) considers that a large company has greater political power and can negotiate in its own interest for reducing the effective tax rate of the income and as consequence a reduction of ROA. The political power (the larger company is the effective tax rate is smaller) is sustained also by the studies of Hsieh (2012), Porcano (1986).

Table 5. OLS estimations of board of directors' characteristics, ownership structure, and CEO characteristics on ROA

Variables	**ROA (FE)**		**ROA (FE GLS)**		**ROA (GLS)**		**ROA (FE White)**	
	β	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
RC	0.01	0.05	0.02	0.02	**0.112*** (2.660)	0.04	0.01	0.02
CEOT	0.00	0.00	0.00	0.00	**-0.002*** (-2.945)	0.00	0.00	0.00
FS	0.00	0.01	**-0.014*** (-3.059)	0.00	**0.001*** (2.094)	0.00	0.00	0.01
BC	-0.01	0.02	-0.01	0.01	**-0.004*** (-2.191)	0.00	**-0.012*** (-3.213)	0.00
WB	0.08	0.13	0.04	0.07	0.03	0.08	**0.078*** (2.208)	0.04
BI	-0.14	0.10	0.01	0.05	-0.07	0.08	**-0.135*** (-2.924)	0.05
BS	0.00	0.02	**-0.034*** (-2.773)	0.01	0.00	0.00	0.00	0.02
CEOA	**0.001*** (3.690)	0.00	**0.000*** (2.913)	0.00	**0.000*** (6.785)	0.00	**0.001*** (2.189)	0.00
CEOD	**-0.067*** (-3.797)	0.02	**-0.028*** (-3.190)	0.01	**-0.063 *** (-8.535)	0.01	**-0.067*** (-2.537)	0.03
CEOH	0.02	0.01	0.02	0.02	-0.01	0.01	**0.017*** (2.200)	0.01
IO	0.03	0.06	-0.02	0.03	0.03	0.05	0.03	0.03
LEV	-0.01	0.00	0.00	0.00	**-0.011*** (-6.155)	0.00	-0.01	0.00
C	0.18	0.14	**0.455*** (5.388)	0.08	**0.104*** (5.951)	0.02	0.18	0.15
Rsq	0.680		0.680		0.209		0.407	
Adj Rsq	0.650		0.650		0.195		0.351	
Fstat	22.239		22.239		15.144		7.185	

Note. * Significant at the 5-percent level. SE depicts the Standard Error of the Regression. The t-statistic for each statistically significant coefficient is reported in parentheses. Description of the variables is provided in Table 1. Source: Author's computations.

Table 6. The sign of the influence exerted by board of directors' characteristics, ownership structure, and CEO characteristics on ROA

Performance variables	RC	CEOT	FS	BC	WB	BI	BS
ROA	+	-	- / +	-	+	-	-
Performance variables	**CEOA**	**CEOD**	**CEOH**	**IO**	**LEV**	**C**	
ROA	+	-	+		-	+	

Zimmerman (1983) considers vice versa that a larger company is taxed more by the state and in this way it takes place a reduction of net income, implicitly of ROA. The variable WB has a positive influence on ROA. The reason is that women being more balanced, have a greater risk aversion than men, and take less risky financial decisions. Women have the capacity to come up with new ideas and new concepts of using more effectively company's assets and in this way it can be explained why WB has a positive influence on ROA. The CEO age also has a positive impact on ROA, the explanation being of human nature. An older age represents in fact a greater professional experience. CEO ownership influences positively financial performance, also from human considerations. The more they own in the company, the more motivated they are to take the correct decisions for the company being in stake their own interest. A negative impact is had by CEOT, CEOD, BI, BC, BS, and LEV. The corporate governance variables that have a negative impact can be explained through the cost perspective that is reflected on the company. More monitoring committees, more members of the board inclusively those independent, assume costs which must be supported by the company. The costs lead implicitly to a reduction of the net income which will influence inevitably also the financial performance of the company through reduced performance indicators. CEOT has a negative impact explained through the fact that a CEO which holds a position for too many years becomes too sure of its position and can take riskier decisions which can affect the financial performance reflected through ROA. The variable CEOD is related to the same idea of greater power that we consider a CEO has and which can influence negatively his financial decisions. LEV has a negative impact although Modigliani-Miller (1958) have shown that an indebted company is more valuable, financially the debts assume a cost that is reflected on net income, and implicitly on ROA.

Table 7 discloses the estimations related to the first model when ROE was considered as independent variable.

Table 7. OLS estimations of board of directors' characteristics, ownership structure, and CEO characteristics on ROE

Variables	ROE (FE)		ROE (FE GLS)		ROE (GLS)		ROE (FE White)	
	β	SE	β	SE	β	SE	β	SE
RC	-0.17	0.10	-0.03	0.04	-0.02	0.06	-0.17	0.14
CEOT	0.00	0.00	0.00	0.00	**-0.003*** (-2.829)	0.00	0.00	0.00
FS	0.02	0.01	0.00	0.01	**0.009*** (9.446)	0.00	0.02	0.01
BC	-0.02	0.04	-0.01	0.01	0.00	0.00	**-0.024*** (-3.052)	0.01
WB	0.36	0.24	0.14	0.11	0.07	0.12	**0.356*** (2.584)	0.14
BI	-0.04	0.18	0.04	0.10	0.08	0.12	-0.04	0.08
BS	**-0.073*** (-2.287)	0.03	**-0.094*** (-4.520)	0.02	**0.009*** (2.224)	0.00	-0.07	0.05
CEOA	**0.001*** (2.517)	0.00	**0.001*** (3.959)	0.00	**0.001*** (5.648)	0.00	**0.001*** (2.383)	0.00
CEOD	**-0.075*** (-2.266)	0.03	**-0.049*** (-4.230)	0.01	**-0.065*** (-7.349)	0.01	**-0.075*** (-2.412)	0.03

CEOH	**0.018*** (0.719)	0.03	0.01	0.01	0.01	0.01	0.02	0.01
IO	-0.10	0.10	-0.06	0.05	-0.06	0.07	-0.10	0.06
LEV	**0.057*** (6.238)	0.01	0.01	0.01	**0.023*** (5.295)	0.00	0.06	0.04
C	0.15	0.26	**0.449*** (3.759)	0.12	0.00	0.02	0.15	0.20
Rsq	0.42		0.65		0.31		0.42	
Adj Rsq	0.36		0.62		0.30		0.36	
Fstat	7.43		19.35		25.48		7.43	

Note. * Significant at the 5-percent level. SE depicts the Standard Error of the Regression. The t-statistic for each statistically significant coefficient is reported in parentheses. Description of the variables is provided in Table 1. Source: Author's computations.

Neither for the ROE variable as neither for the other performance variables, the estimation did not provide a coefficient of determination (Rsq) to validate the model for simple OLS case without effects or GLS weight. We have applied the Hausman test also for the independent variable ROA and p-value associated to the test is equal to 0.1116, which sustains the possibility of using the fixed effects. The coefficient of determination is higher than in the case of ROA reaching even 65%. The probability associated to the F test is null so it can be accepted the validity of the model for a confidence interval of 95%. The values specific to Durbin Watson are also high in comparison with ROA model, but they maintain low.

Table 8 summarizes the situation of the significations of the influences of corporate governance variables on the financial performance represented by ROE.

Table 8. The sign of the influence exerted by board of directors' characteristics, ownership structure, and CEO characteristics on ROE

Performance variables	**RC**	**CEOT**	**FS**	**BC**	**WB**	**BI**	**BS**
ROE		-	+	-	+		- / +
Performance variables	**CEOA**	**CEOD**	**CEOH**	**IO**	**LEV**	**C**	
ROE	+	-	+		+	+	

Source: Author's processing.

It can be noticed that the situation is identical to ROA, both return indicators being calculated similarly and having a similar financial value. There are also differences from ROA as it would be LEV which this time has a positive influence. The explanation is of behavioral nature and it represents the fact that ROE highlights the company performance from the stockholders' perspective. The stockholders prefer a higher indebtedness degree, thus the financing pressure is transferred to creditors. Another difference is found in the size of the board which has both meanings. A larger board, in addition to the remuneration of the members, can also have advantages through the fact that the most important company decisions can be analyzed and discussed in more detail. In this way it can be chosen the best option that can bring a value added to the company and implicitly to ROE which is a financial profitability indicator. Also for the variable ROIC it is admitted the use of fixed effects through the exploitation of the Hausman test which presents a probability of 70.67% over the limit of 5% admissible in order to reject the fixed effects. From the significance point of view, ROIC follows the same pattern as the variable ROA being identical for the dependent variables. The only difference is CEOH which for ROIC is not statistically significant.

Table 9 shows the estimations related to the first model when ROIC was employed as independent variable.

Table 10 exhibits the estimations related to the first model when Q was employed as independent variable. Unlike the other three, this one is valid without the fixed effects or the GLS weight. The coefficient of determination is higher than the first three OLS estimations even reaching the value of 83% which sustains the validity of the models. The probability associated to the F test also sustains the validity of the models analyzed.

A serious problem that must be examined is the lower value of the Durbin Watson coefficient which is lower than the rest of the independent variables showing the autocorrelation presence. Thus, for the model with Tobin's Q the interpretation of the results must be questionable taking into account the autocorrelation.

Table 11 synthesizes the influence signs of the board of directors' characteristics, ownership structure, and CEO characteristics on all performance proxies. The empty spaces represent the variables that have not been significant for a statistical level of significance of 5%. For the variable Q which is calculated differently of the other variables it is noticed that it is kept the same significance at the first three performance variables, the difference being given by the fact that five variables are not statistically significant for this model. Because it is an indicator based on the market value (stock capitalization) it catches also the perception of the potential investors on the company. Surprisingly, the FS has a negative impact. The explanation could be given by the fact that a large company reaches maturity and that investors want growth possibilities that the company cannot have. The presence of the Audit, Compensation, Governance, and Nomination Committees also have a negative impact, contrary to the expectations. The board independence has a negative impact; the explanation could be given by the fact that too many non-executive members, even if they monitor the company, in a large number they become useless and can be seen as redundant costs. The size of the board has a positive influence on Tobin's Q on the economic consideration that more members are an indicator of better organization and more minds to reflect on the financial decisions taken. The CEOA is positive in all the cases analyzed and is predictable because the age is an indicator of the CEO experience. The CEOD is negative in all the case being expected that in a certain moment the USA Corporate Governance Code does not allow that the CEO has too many functions in the same company. The CEOH is positive for ROA and ROE and is a normal result since the CEO by owning stocks in the company becomes also stockholder and is in this way interested also in the managers' profitability (ROA) and in that of the stockholders (ROE). LEV is a control indicator which represents the indebtedness degree which is on the taste of stockholders (positive influence on the ROE), but is not appreciated by the managers (negative influence on ROA) being a way of controlling the stockholders in the agency problems.

Table 9. OLS estimations of board of directors' characteristics, ownership structure, and CEO characteristics on ROIC

Variables	**ROIC (FE)**		**ROIC (FE GLS)**		**ROIC (GLS)**		**ROIC (FE White)**	
	β	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
RC	0.05	0.06	0.00	0.02	**0.089*** (2.783)	0.03	**0.055*** (2.533)	0.02
CEOT	0.00	0.00	0.00	0.00	**-0.002*** (-3.661)	0.00	0.00	0.00
FS	0.00	0.01	**-0.013*** (-2.451)	0.01	**0.003*** (3.671)	0.00	0.00	0.01
BC	-0.01	0.02	-0.01	0.01	**-0.003*** (-1.955)	0.00	**-0.011*** (-2.789)	0.00
WB	0.08	0.14	0.04	0.07	-0.02	0.07	**0.077*** (2.455)	0.03
BI	-0.10	0.11	0.01	0.05	-0.10	0.07	**-0.096*** (-2.052)	0.05
BS	0.00	0.02	**-0.033*** (-2.580)	0.01	0.00	0.00	0.00	0.02
CEOA	**0.001*** (3.090)	0.00	**0.000*** (3.212)	0.00	**0.000*** (7.218)	0.00	**0.001*** (2.030)	0.00
CEOD	**-0.059*** (-3.062)	0.02	**-0.030*** (-3.321)	0.01	**-0.066*** (-9.061)	0.01	**-0.059*** (-2.193)	0.03
CEOH	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01
IO	0.00	0.06	-0.02	0.03	0.06	0.04	0.00	0.02

LEV	-0.01	0.01	0.00	0.00	**-0.012*** (-7.398)	0.00	-0.01	0.00
C	0.14	0.15	**0.413*** (4.787)	0.09	**0.076*** (4.576)	0.02	0.14	0.15
Rsq	0.36		0.67		0.30		0.36	
Adj Rsq	0.30		0.64		0.28		0.30	
Fstat	5.86		21.53		24.10		5.89	

Note. * Significant at the 5-percent level. SE depicts the Standard Error of the Regression. The t-statistic for each statistically significant coefficient is reported in parentheses. Description of the variables is provided in Table 1. Source: Author's computations.

Table 10. OLS estimations of board of directors' characteristics, ownership structure, and CEO characteristics on Q

Variables	**Q**		**Q (FE)**		**Q (FE GLS)**		**Q (GLS)**		**Q (FE White)**	
	β	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**	**β**	**SE**
RC	-0.16	0.66	0.11	0.47	-0.01	0.03	-0.01	0.18	0.11	0.14
CEOT	-0.01	0.01	-0.01	0.02	0.00	0.00	0.01	0.00	-0.01	0.02
FS	**-0.272*** (-21.932)	0.01	**-0.372*** (-5.287)	0.07	-0.01	0.01	**-0.094*** (-16.366)	0.01	**-0.372*** (-3.027)	0.12
BC	-0.07	0.05	0.02	0.19	0.00	0.01	**-0.025*** (-3.288)	0.01	0.02	0.02
WB	2.10	1.61	0.32	1.13	0.00	0.08	0.04	0.30	0.32	0.29
BI	-1.09	1.25	-0.95	0.87	0.00	0.07	0.18	0.29	**-0.950*** (-2.254)	0.42
BS	**0.139*** (4.997)	0.03	0.29	0.15	0.00	0.02	**0.213*** (11.172)	0.02	0.29	0.36
CEOA	**0.011*** (3.602)	0.00	**0.006*** (2.346)	0.00	0.00	0.00	**0.001*** (2.125)	0.00	0.01	0.00
CEOD	**-0.621*** (-3.779)	0.16	-0.10	0.16	0.00	0.01	-0.05	0.03	-0.10	0.15
CEOH	-0.12	0.17	0.02	0.12	0.00	0.01	0.04	0.05	0.02	0.03
IO	0.03	0.70	0.33	0.50	0.00	0.04	-0.13	0.18	0.33	0.18
LEV	**0.139*** (3.456)	0.04	-0.01	0.04	0.00	0.00	**0.017*** (2.107)	0.01	-0.01	0.01
C	**4.363*** (0.000)	0.28	**5.121*** (4.057)	1.26	**0.646*** (5.277)	0.12	**1.062*** (8.918)	0.12	**5.121*** (5.642)	0.91
Rsq	0.49		0.79		0.83		0.36		0.79	
Adj Rsq	0.49		0.77		0.82		0.34		0.77	
Fstat	56.11		39.32		52.00		31.57		39.32	

Note. * Significant at the 5-percent level. SE depicts the Standard Error of the Regression. The t-statistic for each statistically significant coefficient is reported in parentheses. Description of the variables is provided in Table 1. Source: Author's computations.

Table 11. The sign of the influence exerted by board of directors' characteristics, ownership structure, and CEO characteristics on all performance variables

Performance variables	RC	CEOT	FS	BC	WB	BI	BS
ROA	+	-	- / +	-	+	-	-
ROE		-	+	-	+		- / +
ROIC	+	-	- / +	-	+	-	-
Q			-	-		-	+
Performance variables	**CEOA**	**CEOD**	**CEOH**	**IO**	**LEV**	**C**	
ROA	+	-	+		-	+	
ROE	+	-	+		+	+	
ROIC	+	-			-	+	
Q	+	-			+	+	

Model 2. We followed the impact between the CEO remunerations and financial performance. The remuneration can be of salary nature, bonuses, or stock packages at the respective company (Table 1).

Table 12 shows the estimations related to the second model when ROA was employed as independent variable. It is noticed that the dependent variables are not statistically significant for a significance level of 5%.

Table 12. OLS estimations of CEO Remuneration on ROA

Variables	ROA (FE)		ROA (FE GLS)	
	β	Prob.	β	Prob.
CEOS	-0.001	0.640	0.000	0.943
CEOB	0.001	0.246	0.000	0.722
CEOSA	0.001	0.206	0.000	0.133
C	**0.121***	0.000	**0.118***	**0.000**
Rsq	0.39		0.75	
Adj Rsq	0.34		0.72	
Fstat	7.88		36.43	

*Note.** Significant at the 5-percent level. Description of the variables is provided in Table 1. Source: Author's computations.

Table 13 shows the estimations related to the second model when ROE was employed as independent variable. It is noticed that only the CEOSA has been statistically significant for the 5-percent level, having the positive influence on the financial performance through the ROE indicator. The result is not surprising being obvious the positive influence of the remunerations on the performance indicators. It is predictable as the salary and the bonuses not to be significant since they are established even by the CEO together with the rest of the board members.

Table 13. OLS estimations of CEO Remuneration on ROE

Variables	ROE (FE)		ROE (FE GLS)	
	β	SE	β	SE
CEOS	0.001	0.002	0.002	0.004
CEOB	0.000	0.000	0.000	0.002
CEOSA	**0.002***	0,000	**0.003***	0.001
	(2.495)		(2.500)	
C	**0.158***	0.020	**0.148***	0.048
	(7.747)		(3.117)	

Rsq	0.37	0.67
Adj Rsq	0.32	0.64
Fstat	7.32	25.03

Note. * Significant at the 5-percent level. SE depicts the Standard Error of the Regression. The t-statistic for each statistically significant coefficient is reported in parentheses. Description of the variables is provided in Table 1. Source: Author's computations.

Unlike ROA, where it has not been significant the CEO reward with stock packages as variable is significant in the ROE model. This fact is expected, ROE being the return of the stockholders and through the reward in stocks the CEO becomes automatically stockholder. In this way he is motivated to increase the financial performance measured as ROE because at its own turn it will benefit of dividends and of exchange rates increases of the stocks with which he is rewarded.

Table 14 points out the estimations related to the second model when Q was employed as independent variable. It is noticed that they have been statistically significant for a significance interval of 5% the variables CEOSA and CEOB. Paradoxically, for the model with independent variable Q, the CEOSA has a negative influence on financial performance. An explanation could be that Tobin's Q reflects the investors' perception and that these ones can consider the CEO remuneration with stocks as an action through which he has greater power in the company.

Table 14. OLS estimations of CEO Remuneration on Q

Variables	Q (FE)		Q (FE GLS)	
	β	SE	β	SE
CEOS	-0.011	0.017	-0.001	0.000
CEOB	**0.033 *** (4.661)	0.007	0.000	0.001
CEOSA	**-0.019 *** (-3.538)	0.005	0.000	0.001
C	**0.588 *** (2.651)	0.222	**0.589 *** (79.868)	0.007
Rsq	0.79		0.81	
Adj Rsq	0.77		0.80	
Fstat	46.36		54.69	

Note. * Significant at the 5-percent level. SE depicts the Standard Error of the Regression. The t-statistic for each statistically significant coefficient is reported in parentheses. Description of the variables is provided in Table 1. Source: Author's computations.

6. Comparisons with Previous Studies

We have obtained a negative correlation between financial performance and the board independence (BI). Similar results are found also in the studies of Bhagat and Black (2000) which have used as proxy variable for performance Tobin's Q for NASDAQ companies; Hermalin and Weisbach (1991); Yermack (1996); Metrick and Ishii (2002). The negative correlation is also found in the studies of Guest (2008) which uses as proxy variables for performance both ROA and Tobin's Q for analyzing the United States of America and Great Britain. Negative correlation for USA has also identified Erkens et al. (2012). MacAvoy and Millstein (1999) have found better performance for companies that have an active and independent management. The positive correlation between non-executive members and financial performance has been found by the studies of Dahya and McConnell (2007), Bhagat and Bolton (2008), and Al-Najjar (2014) which used as proxy for performance both ROA and ROE.

We obtained both positive correlation and negative correlation between the size of the board (BS) and the financial performance. The similar results for negative correlation have been obtained also by Eisenberg et al. (1998), Haniffa and Hudaib (2006), Hermalin and Weisbach (2003), Yermack (1996), Guest (2008) who have used as proxy variable for performance Tobin's Q and ROA. The negative correlation has been also found by Cheng (2008), Adusei (2011), Chang and Dutta (2012). The positive correlation has been identified by Adams and Mehran (2005), Dalton and Dalton (2005), Al-Najjar (2014).

We have obtained positive correlation between financial performance and the share of women on the board (WB). Similar results have also obtained Vintilă et al. (2014). Fidanoski et al. (2014) have found a negative correlation between the share of women and financial performance indicators as ROA and ROE. We have obtained a positive correlation between financial performance and the CEO age (CEOA). Researches with similar results had been realized by Bhagat and Bolton (2008).

We have obtained a negative correlation between financial performance and CEO tenure (CEOT). Similar results are found also in the papers of Boone et al. (2007), Dikolli et al. (2011), Horstmeyer (2011), and Berger et al. (2012). Boone et al. (2007) have analyzed also the American market and in addition to the variables recorded they have included also the CEO stock possessions that had a negative impact on corporate governance factors acting on their financial performance. Among this we can enumerate positive and negative contradictory experiences between the size of the board, the size of the company, the indebtedness degree and the financial performance. These differences vary according to the quantification variable of the management performance (ROA, ROE, and Q) each representing the interests of different stakeholders: stockholders, managers, investors. For the rest of representative variables of corporate governance we have concluded that the presence of the Risk Committee in addition to Audit Committee, the share of women on the board, the CEO age, as well as the fact that the CEO holds stocks of the company it emphasize a positive impact on financial performance.

7. Concluding Remarks

After the events from 2007 the financial world and CEOs of the companies have realized that they must give a higher importance to corporate governance and its implications. Numerous studies had been performed on this theme, but these are concentrated on the financial institutions. In the present paper we have wished to analyze how and if corporate governance influences companies part of the NASDAQ index. The study includes the period 2000-2013 on 50 companies and it shows that a great number of corporate governance factors action on the financial performance of them. Among them we can enumerate positive and negative contradictory correlations between the board size, the company size, the indebtedness degree, and the financial performance. These differences vary in accordance with the quantification variable of the management performance (ROA, ROE, Q); each represents the different stakeholder's interests: stockholders, managers, investors. For the rest of the representative variables of corporate governance we have obtained that the presence of the Risk Committee with Audit Committee, the share of women on the boards, CEO age, and the fact that the CEO holds stocks of the company they manage result in a positive correlation on the financial performance.

On the contrary, the tenure, the CEO duality, as well as the share of non-executive members (independent) on the board have a positive influence on financial performance. From the proxy variables of financial performance, Tobin's Q was the least influenced by the corporate governance variables and explanation being that it represents the perception of the investors on the capital market, investors who are not in direct contact with these elements. For any of the models analyzed, the share of the institutional investors has not been statistically significant. We have analyzed also the impact of the forms of CEO reward on financial performance and we have obtained, as it has been expected, a positive correlation on ROE and Tobin's Q. From the reward in the forms of salary, bonuses, and rewards in company stocks, the last two have been significant, the results being difficult to interpret. ROA has not been statistically significant for any of the reward forms and for Tobin's Q, the CEO reward through stocks has a negative correlation the explanation referring to the fact that the investors want to be represented by a manager who has more power. In this way they can ensure that there will not appear agency problems.

Although we have obtained an influence from the corporate governance variables on the financial performance of the largest companies part of the Dow Jones and NASDAQ, mainly from the technology area, it must be mentioned that the size of the estimation coefficients is relatively lower. Thus, the purpose of the paper, of identifying if the financial performance of the most important American companies is due to a certain extent to corporate governance, has not been totally reached, the influence of governance being presently lower. Regarding the history of companies we can state that their performance is sustained in a great measure by elements of corporate finance. As future research directions, our aim is to include several industries.

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Determinants of Banking Efficiency: Evidence from Egypt

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Abstract

This paper aims at analyzing the effects of bank size, age and ownership on efficiency of Egyptian banks, as measured by Data Envelopment Analysis (DEA) according to CCR method. This has been conducted using Wilcoxon signed rank test, as applied on a sample of 10 banks during the period from 1984 to 2013.

Results indicate that, efficiency scores differ significantly, according to “size”, “age” and “ownership” of the Egyptian banks, where small, old and private banks seem to be more efficient than big, young and public ones. Also, robustness check assures the “age” and “ownership” effects, using panel data analysis.

Keywords: bank age, bank efficiency, bank ownership, Data Envelopment Analysis (DEA), Egyptian banks, size effect

1. Introduction

Efficiency measurement is an aspect of firm performance that is measured with respect to an objective; it can be measured with respect to maximization of output, maximization of profits, or minimization of costs. Scale economies, scope economies, and X-efficiency are different aspects of performance. Scale and scope economies refer to selecting the appropriate outputs, while X-efficiency refers to selecting the appropriate inputs. Typically, scale economies refer to how the firm's scale of operations (its size) is related to cost. Scope economies refer to how the firm's choice of multiple product lines is related to cost (Mester, 2003, p. 2).

Data envelopment analysis (DEA) is a mathematic technique developed in operations research and management science and over the last 40 years, the field of its usage has been extensively updated. DEA is a non-parametric linear programming technique that measures the relative efficiency of a group of decision making units (DMUs) which receive multiple inputs to produce multiple outputs.

The basic idea for development of DEA method is to enable the efficiency measurement in non-profit sector (e.g., schools, hospitals, police districts, mines, air force). Later on, it was applied also in the profit sector (e.g., bank branches, production facilities) (Berger & DeYoung, 1997; Berger & Humphrey, 1997).

DEA, first proposed by Charnes, Cooper, and Rhodes (1978) and applied by Sherman and Gold (1985) is based on earlier work initiated by Farrell (1957). DEA has become a popular technique in bank efficiency analysis since its first application by Berger and Humphrey (1997) provides an international survey of efficient frontier analysis of financial institution performance. Maletić, Kreća, and Maletić (2013, p. 845) addresses the basics of DEA methods: CCR (Charnes, Cooper, and Rhodes), BCC (Banker, Charns, and Cooper) and AP (Andersen and Petersen).

The most basic models of DEA are CCR, BCC, Additive and SBM. CCR and BCC models are radial and aim to minimize inputs while keeping outputs at least the given output levels (*input-oriented*) or attempt to maximize outputs without requiring more of any of the observed input values (*output-oriented*). The combination of both orientations in a single model is called additive model. Additive models treat the slacks (the input excesses and output shortfalls) directly in objective function, but it doesn’t have the ability to measure the depth of inefficiency by a scalar similar to θ^* in CCR-type models (Shafiee, Sangi, & Ghaderi, 2013, p. 2).

DEA models that project units on the efficient frontier by reducing resources are termed *input minimization* models, and those that augment outputs are termed *output maximization* models. A DEA benchmarking model is unambiguously specified once we determine its inputs and outputs, and specify the linear programming formulation that fits the envelopment surface and projects the inefficient units on the efficient frontier (Soteriou

& Zenios, 1997, p. 24).

The choice of inputs and outputs is perhaps the most important task in employing DEA to measure the relative efficiency of the DMUs. Two approaches are widely used to identify a bank's inputs and outputs, the production approach (e.g., Sherman & Gold, 1985), and the intermediation approach (e.g., Yue, 1992). Under the production approach, banks are treated as a firm to produce loans, deposits, and other assets by using labor and capital. However, banks are considered as financial intermediaries to transform deposits, purchase funds and labors into loans and other assets under the intermediation approach. More specifically, deposits are treated as an input under the production approach and an output under the intermediation approach.

Egyptian banks have expanded their activities that the growing inputs (e.g., assets, deposits, and paid interests) and outputs (e.g., loans, gained interests and net profits) reflect, during the period from 1984 to 2013. Table 1 illustrates the development of Egyptian banks' efficiency using from 1984 till 2013, as follows:

Table 1. Development of Egyptian banks' efficiency from 1984 to 2013

Year	Bank1	Bank2	Bank3	Bank4	Bank5	Bank6	Bank7	Bank8	Bank9	Bank10
1984	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1985	0.0000	0.9908	08924	0.8709	1.0000	.8015	0.0000	1.0000	0.0000	0.9626
1986	1.0000	0.7821	0.8451	0.7529	1.0000	0.8185	0.9314	1.0000	0.9350	0.8918
1987	1.0000	0.8231	0.7940	0.8583	1.0000	0.8347	0.9538	1.0000	0.8187	1.0000
1988	1.0000	0.8982	0.8936	0.8969	1.0000	0.9961	1.0000	1.0000	0.8734	1.0000
1989	1.0000	0.9398	0.8323	0.9367	1.0000	1.0000	0.9500	1.0000	0.9328	1.0000
1990	0.9831	1.0000	0.9636	1.0000	1.0000	1.0000	0.8635	1.0000	1.0000	1.0000
1991	0.8494	1.0000	1.0000	0.8329	1.0000	0.9879	0.8894	1.0000	1.0000	1.0000
1992	0.8276	0.9448	0.9136	0.7079	1.0000	1.0000	0.9540	1.0000	0.9754	0.8319
1993	0.5683	0.8766	0.7369	0.8105	1.0000	0.8660	1.0000	1.0000	0.7206	0.7754
1994	0.8808	0.6868	0.7065	0.8362	1.0000	0.9477	0.8974	1.0000	0.5817	0.8777
1995	0.7935	0.7123	0.7665	0.8144	1.0000	0.9510	0.9755	0.9214	1.0000	0.8715
1996	0.8001	0.8192	0.9035	0.9755	1.0000	1.0000	1.0000	1.0000	0.9445	0.9133
1997	0.8682	0.9130	0.9524	0.9424	1.0000	1.0000	1.0000	1.0000	0.9268	0.9357
1998	0.6320	0.7684	0.7587	0.6821	1.0000	0.8697	1.0000	1.0000	0.9436	0.8284
1999	0.7175	0.8727	0.9275	0.8001	1.0000	1.0000	1.0000	1.0000	0.7939	0.8770
2000	0.7494	0.8922	0.9674	0.9212	1.0000	0.9785	1.0000	1.0000	1.0000	0.8383
2001	0.7095	0.8081	0.9275	0.9042	1.0000	0.9702	1.0000	0.9210	1.0000	1.0000
2002	0.7961	0.8204	1.0000	0.8674	1.0000	1.0000	1.0000	0.8546	1.0000	0.9008
2003	0.7365	0.7568	0.9655	0.8670	1.0000	1.0000	0.9621	0.7793	1.0000	1.0000
2004	0.7181	0.6457	0.9370	0.8501	1.0000	1.0000	0.8882	0.7678	1.0000	1.0000
2005	0.6212	0.7946	0.9622	0.8219	1.0000	1.0000	0.9931	0.9506	1.0000	1.0000
2006	0.7569	1.0000	0.9544	0.7941	1.0000	1.0000	1.0000	0.9236	1.0000	1.0000
2007	0.8265	1.0000	0.7571	1.0000	1.0000	0.9897	1.0000	1.0000	1.0000	1.0000
2008	0.6320	1.0000	0.8546	0.8206	1.0000	0.8765	0.8935	0.9985	1.0000	1.0000
2009	0.7074	1.0000	0.7910	0.8349	1.0000	0.7898	0.9648	0.9228	1.0000	1.0000
2010	0.7345	1.0000	0.8331	1.0000	1.0000	0.8107	0.9101	0.8493	1.0000	1.0000
2011	0.7591	1.0000	0.9339	0.8812	1.0000	0.8534	1.0000	0.9630	0.9396	0.8964
2012	0.7484	1.0000	0.9633	0.8692	1.0000	0.7586	1.0000	1.0000	0.9063	1.0000
2013	0.7995	1.0000	1.0000	0.9307	1.0000	0.8179	1.0000	0.9317	0.9970	0.9083

Source: calculated by the researcher using DEA according to CCR method.

In brief, this study tries to answer these three main questions:

- Does “bank size” affect its efficiency?
- Does “bank age” affect “banking efficiency”?
- Does “ownership type” affect “banking efficiency”?

This paper addresses a main question about determinants of “banking efficiency”, as measured DEA technique using CCR method. Determinants of performance, to be examined, are variables related to “bank size”, “bank age” and “ownership type”.

The paper is arranged as follows: after this introduction, section 2 reviews research literature that has concerned with “banking efficiency” and “banking characteristics” that include size, age and ownership type. Section 3 explains how to measure research variables and illustrates how to test the hypotheses. Section 4 is for empirical work, presenting results, discussing how these results answer research questions using Wilcoxon Signed Rank Test and providing a robustness check using step-wise regression technique. Section 5 summarizes the paper and provides remarks about conclusions.

2. Literature Review

This section presents some of previous work, which has been conducted in the field of “banking efficiency” and “banking characteristics” that may affect banking efficiency.

Regarding “banking efficiency”, Aly et al. (1990) uses CCR model to evaluate the technical, scale and allocative efficiencies of 322 USA banks in 1986. The number of full-time staff, fixed asset, capital and loanable fund are chosen as inputs; while real estate loan, commercial and industrial loan, consumer loan, miscellaneous loan, and current deposit are chosen as outputs.

Andersen and Petersen (1993) propose ranking model that shows how much the unit can “get worse” but still be efficient. Superefficient units are those with efficiency of over 100%, the most efficient is the one which is highest ranked, while the units with efficiency less than 100% are inefficient and therefore ranked lower.

Soteriou and Zenios (1997) have indicated that analyzing banks’ efficiency should include branches, service quality, operations, and profitability, simultaneously. The authors develop a framework for combining strategic benchmarking with efficiency benchmarking of the services offered by bank branches. They use 3 DEA models: an operational efficiency model, a quality efficiency model and a profitability efficiency model. Empirical results indicate that superior insights can be obtained by analyzing operations, service quality, and profitability simultaneously than the information obtained from benchmarking studies of these 3 dimensions separately.

Berger and Humphrey (1997) documents 130 studies of financial institution efficiency, as applied on 21 countries, from multiple time periods, and from various types of institutions, including banks, credit unions, and insurance companies. Results suggest that progress has been made on efficiency measurement rather than that has been made in explaining the differences in performance (i.e., profitability or efficiency) across institutions. Athanassopoulos et al. (2000) examines 47 branches of the Commercial Bank of Greece and uses the DEA results to implement the proposed changes in the bank performance measurement system.

Milind (2003) carried out the banks efficiency analysis in India on the basis of two models. Model A inputs are: interest expenses, non-interest expenses, and outputs: net interest income, net non-interest income, and model B inputs are: deposits, employees, and outputs: net loans, non-interest income). Fries and Taci (2004) compares the performance of 289 banks in 15 post-communist countries, using an intermediate approach. The results show that foreign banks are more competitive and have better results in cost efficiency than domestic banks.

Efficiency of Canadian banks has been investigated by Avkiran (2006) and Wu et al. (2006). Avkiran (2006) applies DEA using a sample of 24 Canadian foreign bank subsidiaries in year 2000. The outputs include loans, securities and non-interest income, while inputs include deposits, non-interest expenses and equity multiplier. Wu et al. (2006) integrates the DEA and neural networks (NNs) to examine the relative branch’s efficiency of a big Canadian bank. The authors observe 142 banks in Canada, and monitor the number of employees and costs for input indicators; while for output they monitor deposits, income and bank loans.

Sakar (2006) in Turkey analyzes 11 banks and monitors input: branch numbers, employees per branch, assets, loans, deposits, and outputs: ROA, ROE, interest income and non-interest income (assets). Hassan and Sanchez (2007) used DEA to estimate the efficiency of Latin American banks during the period from 1996 to 2003. Results indicate that most of the sources of inefficiencies are regulatory rather than technical. This means that bank managers do not choose the correct (optimal) input and output mix, because they are not forced to do so by the environmental conditions (either government regulations or market conditions).

Moh'd Al-Jarrah (2007) uses DEA approach to investigate cost efficiency levels of banks operating in Jordan, Egypt, Saudi Arabia and Bahrain over 1992-2000. The estimated cost efficiency is further decomposed into technical and allocative efficiency at both variable and constant return to scale. Later on, the technical efficiency is further decomposed into pure technical and scale efficiency. Results show that cost efficiency scores range from 50 to 70% with some variations in scores depending on bank's size and geographical locations. Avkiran (2009) applied non-oriented network slacks-based measure in domestic commercial banks of United Arab Emirates (UAE), using non-oriented, non-radial SBM modeling.

Alber (2011) considers the effects of banking expansion on profit efficiency of the Saudi banks. This has been conducted using a sample of 6 commercial banks (out of 11), and covering the period from 1998 to 2007. Profit efficiency has been measured using the ratio of actual profitability to the best one, which a similar bank can realize. Tests indicated that we could accept hypotheses regarding the effects of "availability of phone banking", "number of ATMs" and "number of branches" on profit efficiency of Saudi banks.

Maletić, Kreća, and Maletić (2013) uses DEA technique in case of measuring operation efficiency of the banking sector in Serbia, which currently has 33 banks. Input and output indicators differ according to the used models A and B. According to Model A, inputs include interest expenses and non-interest expenses, while outputs include interest income and net non-interest income. According to Model B, inputs include deposits and employees, while outputs include loans and operating income.

Shafiee, Sangi, and Ghaderi (2013) evaluates the efficiency of an Iranian bank using dynamic SBM model in DEA during three consecutive terms considering net profit as a good link and loan losses as a bad link. Each branch in each term expends money on labor salaries and operating expense as inputs to produce loans as output. In each term some loans become non-performing, because of unable borrowers to make full or even partial payment. Dynamic SBM efficiency is compared with its static efficiency to check the validity of described model. In addition, input-bad link excesses and output-good link shortfalls (slacks) are analyzed and further suggestions to the management are provided.

Thayaparan and Pratheepan (2014) focuses on total factor productivity growth and its decomposition of commercial banks in Sri Lanka, as applied on two state banks and four private banks over the period 2009-2012. By using DEA, total factor productivity and its components are measured in terms of efficiency change, technical efficiency change, pure efficiency change and scale change. Interest income and loans are considered as outputs and deposits, total assets, number of staff and interest expenses are considered as inputs. Results indicate that, all six banks operate averagely at 87.2 % of overall efficiency and that less performance is achieved due to the less progress in technical change than efficiency change. The overall results conclude that private banks are more efficient than state banks.

<u>Concerning with banking characteristics</u>, Carvallo and Kasman (2005) indicates that very small and very large banks are significantly more inefficient than large banks, as applied on 481 Latin American and Caribbean banks over the years from 1995 to 1999 using a stochastic frontier model (SFA). Besides, Anis and Sami (2012) shows that small and medium-sized banks are more efficient than large ones, private banks are more efficient than public ones and foreign banks are more efficient than domestic ones, as applied on 17 Tunisian banks over the period 1997-2006 using a parametric approach stochastic (SFA).

Alber (2014) aims at analyzing the effects of "size", "seasonality" and "attitude to risk" on the performance Egyptian banks. This has been conducted using a sample of 10 banks, and covering the period from the first quarter 2003 to the fourth quarter 2011. Results indicate that, hypotheses regarding the significance of differences between performance indicators, according to "size", "seasonality" and "attitude to risk" on the performance Egyptian banks could be accepted.

Comparing with previous work, the current study:

- Tries to investigate its determinants, while the most of previous work focuses on only efficiency assessment. Berger and Humphrey (1997) addresses that progress has been made on efficiency measurement rather than that has been made in explaining efficiency differences.
- Combines size effect, age and ownership, while the most of previous work concerns with only one or two of these aspects.

3. Data Description and Hypotheses Developing

Required data regarding bank efficiency, size, age and ownership indicators could be shown as follows:

Table 2. Variables representing bank efficiency, size, age and ownership

Variable	Calculation	Sign
Banking Efficiency	Measured by DEA technique according to CCR approach.	CCR
Bank Size [(1)]	=0 for small banks and =1 for big banks	SIZ
Bank Age [(2)]	=0 for young banks and =1 for old banks	AGE
Bank Ownership	=0 for public banks and =1 for private banks	OWN

This paper aims at testing the following three hypotheses:

- There is no significant effect of "bank size" on its efficiency.
- There is no significant effect of "bank age" on its efficiency.
- There is no significant effect of "bank ownership" on its efficiency.

Regarding the first hypothesis, the null hypothesis H_0 states that, for each mean efficiency indicator μ_{CCR}:

$$\mu_{CCR\text{-}SMALL} = \mu_{CCR\text{-}BIG} \quad (1)$$

The alternative hypothesis H_a could be shown as:

$$\mu_{CCR\text{-}SMALL} \neq \mu_{CCR\text{-}BIG} \quad (2)$$

Regarding the second hypothesis, the null hypothesis H_0 states that, for each mean efficiency indicator $\mu_{CCR:}$

$$\mu_{CCR\text{-}YOUNG} = \mu_{CCR\text{-}OLD} \quad (3)$$

The alternative hypothesis H_a could be shown as:

$$\mu_{CCR\text{-}YOUNG} \neq \mu_{CCR\text{-}OLD} \quad (4)$$

Regarding the third hypothesis, the null hypothesis H_0 states that, for each mean efficiency indicator $\mu_{CCR:}$

$$\mu_{CCR\text{-}PUBLIC} = \mu_{CCR\text{-}PRIVATE} \quad (5)$$

The alternative hypothesis Ha could be shown as:

$$\mu_{CCR\text{-}PUBLIC} \neq \mu_{CCR\text{-}PRIVATE} \quad (6)$$

Robustness checks test the significance of differences between CCRs according banks size, age and ownership could be shown, as follows:

$$CCR = \alpha + \beta_1\ SIZ + \beta_2\ AGE + \beta_3\ OWN \quad (7)$$

Regarding each of banks' characteristics, the null hypothesis H_0 could be shown as:

$$\beta_n = 0 \text{ (where } n = 1, 2, 3) \quad (8)$$

The alternative hypothesis H1 could be shown as:

$$\beta_n \neq 0 \text{ (where } n = 1, 2, 3) \quad (9)$$

4. Results of Empirical Study

The following table illustrates the means of bank efficiency scores according to size, age and ownership for a sample of 10 Egyptian banks during the period from 1984 to 2013:

Table 3. Means of bank efficiency according to size, age and ownership

Year	SIZ_S	SIZ_B	AGE_Y	AGE_O	SEA_P	SEA_V
1984	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1985	0.9906	0.9259	0.9508	0.9528	0.9385	0.9607
1986	0.9396	0.8664	0.8760	0.9153	0.8450	0.9294
1987	0.9431	0.8850	0.8951	0.9214	0.8688	0.9345
1988	0.9683	0.9475	0.9378	0.9739	0.9222	0.9782
1989	0.9707	0.9515	0.9418	0.9766	0.9272	0.9805
1990	0.9659	0.9911	0.9893	0.9727	0.9867	0.9773

1991	0.9723	0.9450	0.9365	0.9754	0.9206	0.9795
1992	0.9403	0.8990	0.8788	0.9523	0.8485	0.9602
1993	0.8740	0.8097	0.7985	0.8724	0.7481	0.8937
1994	0.8392	0.8430	0.8221	0.8609	0.7776	0.8841
1995	0.9421	0.8396	0.8173	0.9439	0.7717	0.9532
1996	0.9645	0.9164	0.8996	0.9716	0.8745	0.9763
1997	0.9656	0.9460	0.9352	0.9725	0.9190	0.9771
1998	0.9430	0.7851	0.7682	0.9283	0.7103	0.9403
1999	0.9177	0.8863	0.8636	0.9342	0.8294	0.9452
2000	0.9596	0.9181	0.9060	0.9634	0.8825	0.9695
2001	0.9802	0.8866	0.8698	0.9782	0.8373	0.9819
2002	0.9389	0.9140	0.8968	0.9511	0.8710	0.9592
2003	0.9353	0.8877	0.8652	0.9483	0.8315	0.9569
2004	0.9140	0.8585	0.8302	0.9312	0.7877	0.9427
2005	0.9859	0.8666	0.8400	0.9887	0.8000	0.9906
2006	0.9809	0.9176	0.9011	0.9847	0.8763	0.9873
2007	1.0000	0.9289	0.9167	0.9979	0.8959	0.9983
2008	0.9730	0.8639	0.8614	0.9537	0.8268	0.9614
2009	0.9719	0.8539	0.8667	0.9355	0.8333	0.9462
2010	0.9399	0.8964	0.9135	0.9140	0.8919	0.9284
2011	0.9497	0.9046	0.9148	0.9305	0.8935	0.9421
2012	0.9766	0.8899	0.9162	0.9330	0.8952	0.9441
2013	0.9592	0.9247	0.9460	0.9310	0.9326	0.9425

Source: collected and processed by the researcher using DEA according to CCR method.

The previous table shows the means of bank efficiency according to size, age and ownership as a whole that don't indicate these means according to categories of bank "size", "age" or "ownership". The following table illustrates the means CCRs according to banks' characteristics, for small-sized banks (SIZ_S), big-sized banks (SIZ_B), young banks (AGE_Y) and old banks (AGE_O). In addition, it shows the means of these characteristics, for public banks (OWN_P) and private banks (OWN_V), as follows:

Table 4. Descriptive statistics of efficiency indicators

Variables	**Sign**	**N**	**Min.**	**Max.**	**Mean**	**Std. Dev.**	**Kolmogorov-Smirnov Z**
Efficiency (Small Banks)	SIZ_S	30	.84	1.00	.9534	.03450	0.934
Efficiency (Big Banks)	SIZ_B	30	.79	1.00	.8983	.04807	0.499
Efficiency (Young Banks)	AGE_Y	30	.77	1.00	.8918	.05368	0.498
Efficiency (Old Banks)	AGE_O	30	.86	1.00	.9488	.03296	0.666
Efficiency (Public Banks)	OWN_P	30	.71	1.00	.8648	.06710	0.496
Efficiency (Private Banks)	OWN_V	30	.88	1.00	.9574	.02747	0.664

Source: collected and processed by the researcher.

Efficiency score of using DEA according to CCR method is 95.34% for small banks, while it's 89.83% for big ones. Efficiency scores are 89.18% and 94.88% for young and old banks respectively. Besides, they are 86.48% and 95.74% for public and private banks respectively. However, these differences don't indicate significance. Kolmogorov-Smirnov test shows that variables are *not* normally distributed. So, Wilcoxon signed rank test (as a non-parametric test) is conducted to check the significance of these differences, as follows:

Table 5. Testing hypotheses using Wilcoxon signed rank test

Pair of Variables	Wilcoxon Signed Rank Test Z	Sig.
Efficiency of Small vs. Big banks	- 4.552	0.000
Efficiency of Young vs. Old banks	- 4.530	0.000
Efficiency of Public vs. Private banks	- 4.681	0.000

Source: collected and processed by the researcher.

Testing Hypotheses using Wilcoxon signed rank test shows, at p-value of 0.01, that there's a significant differences between banks' efficiencies, as follows:

- According to bank size, results indicate that efficiency scores of small banks are significantly different from those of big ones. Small banks seem to be more efficient than big ones.
- According to bank age, results indicate that efficiency scores of old banks are significantly different from those of young ones. Old banks seem to be more efficient than young ones.
- According to bank ownership, results indicate that efficiency scores of private banks are significantly different from those of public ones. Private banks seem to be more efficient than public ones.

Testing Hypotheses using Wilcoxon signed rank test shows, at p-value of 0.01, indicates that the null hypothesis is rejected, for the second and third hypotheses. This means that the alternative one could be accepted showing significant difference in Egyptian banks' efficiencies, due to their size, age and ownership.

To check the robustness of these results, step-wise regression analysis has been conducted and provides the following results:

Table 6. Determinants of bank efficiency

Variables entered	α	Size	Age	Own	F	R^2
Own	**0.865** (0.008)***	---	---	**0.093** (0.010)***	79.818	0.211 (0.0879)***
Own Age	**0.814** (0.019)***	---	**0.051** (0.017)***	**0.135** (0.018)***	45.277	0.234 (0.0868)***

Note. Each cell contains the estimated parameters, with std error between brackets, where * denotes p-value of 10%, ** denotes 5% and *** denotes 1%.

Table 6 indicates that "bank ownership" may explain 21.1% of efficiency score at p-value of 1% and when adding "bank age", R^2 becomes 23.4%. This means that:

- Regarding <u>bank size</u>: Robustness check does not support the results obtained by conducting Wilcoxon signed rank test. Literature indicates that this point still needs to be more elaborated. Moh'd Al-Jarrah (2007) shows that bank's size affects its cost efficiency scores. Besides, Carvallo and Kasman (2005) indicates that on average, very small and very large banks are significantly more inefficient than large banks. In addition, Anis and Sami (2012) sows that small and medium-sized banks are more efficient than large ones.
- Regarding <u>bank age</u>: Robustness check supports its effect, as it adds to the explanatory power. Really, R^2 has been increased only by 2.3% (from 21.1% to 23.4%), but the effect seems to be significant and robust.
- Regarding <u>bank ownership</u>: Robustness check supports the results obtained by conducting Wilcoxon signed rank test. In addition, literature assures this effect, where Fries and Taci (2004) and Anis and Sami (2012) indicate that foreign banks are more efficient than domestic ones. Besides, Thayaparan and Pratheepan (2014) concludes that private banks are more efficient than state ones. Bank ownership explains 21.1% of efficiency scores and this could be more elaborated by analyzing private banks characteristics that may enhance efficiency. Further research may investigate their competitive advantages in areas of risk management, systemic risk and financial stability.

5. Summary and Concluded Remarks

This paper aims at analyzing the effects of bank size, age and ownership on efficiency of Egyptian banks, as measured by Data Envelopment Analysis (DEA) according to CCR method. This has been conducted using Wilcoxon signed rank test, as applied on a sample of 10 banks during the period from 1984 to 2013.

Results indicate that, efficiency scores differ significantly, according to "size", "age" and "ownership" of the Egyptian banks, where small, old and private banks seem to be more efficient than big, young and public ones. Also, robustness check assures the "age" and "ownership" effects, using panel data analysis.

Bank ownership explains 21.1% of efficiency scores and this could be more elaborated by analyzing private banks characteristics that may enhance efficiency. Further research may investigate their competitive advantages in areas of risk management, systemic risk and financial stability.

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Notes

Note 1. Small banks are those banks that have less than average size (of sample banks) in terms of their total assets, while big banks have average or more than average size.

Note 2. Young banks are those banks that have less than average age (of sample banks) in terms of years of working in the Egyptian banking market, while big banks have average or more than average age.

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Relationship between Creativity, Personality and Entrepreneurship: An Exploratory Study

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Abstract

In the entrepreneurship field, the study of entrepreneurial opportunities has been a topic of interest, however, the origin and nature of these opportunities, from the perspective of the person who identifies them, has not been sufficiently studied. The aim of this study was to explore the relationship between the preference of the person in the creative process when he identifies an entrepreneurial opportunity and how he organizes and processes the information to take advantage of that opportunity. Another objective is to analyze the personality traits associated with the creative process and thinking style. To explore these relationships, the responses of 183 people who participated in a contest of business ideas were analyzed. Statistical analysis showed that the strongest relationship between the creative process and thinking style was between Sufficiency of Originality and Ideator variables. The same variables also showed the greatest association with the personality traits of those who participated in the study. Other relationships between the creative process, thinking style and personality traits and their implications are also shown.

Keywords: creative problem solving, creativity, entrepreneurs, foursight, opportunities, personality

1. Introduction

Rapid technological change, globalization and disruption, have originated changing circumstances, chaos, confusion, inconsistencies, delays or benefits, knowledge or information gaps, that in the interest of some people, have originated in entrepreneurial opportunities (Eckhardt & Shane, 2003). The proposal to create and introduce new products and services in the market is a response to a problem or need that a person has identified. In this process, creativity and innovation are very important (Pretorius, Millard, & Kruger, 2005). That is why, solving problems creatively is essential in the entrepreneurship field, where the interest is in knowing how, by whom, and with what effects opportunities to create future goods and services are discovered and evaluated (Shane & Venkataraman, 2000).

Generally, Creative Problem Solving (CPS) refers to any activity during which a person, team or organization tries to generate a novel solution to a problem that has not been fully identified (Puccio, 1999). In this process, creativity plays an important role in conceiving new ideas and offering solutions that can be implemented and be result-oriented. Accordingly, Baer (2012) mentions that creativity is determinant for innovation. Leibold, Voelpel, and Tekie (2004) argue that creativity, knowledge and new ideas help establish business models that are more competitive.

In fact, creativity is considered a complex construct. Unsworth (2001) notes that creativity is not homogeneous, making it difficult to understand, since it is a function of several factors -person, process and environment, which can be related to tangible aspects such as a product or the generation of innovative ideas. For Runco (2007), creativity is a personality trait and a cognitive ability. However, creativity is determined by the personality and other factors (Muñoz-Doyague, Gonzalez-Alvarez, & Nieto, 2008).

In the entrepreneurship field, the study of the individual-opportunity binomial has been important throughout the years (Busenitz, Plummer, Klotz, Shahzad, & Rhoads, 2014). However, despite being several the studies that have addressed the study of this pair, the contribution of the creative person in this work has not been openly considered. It seems that the creative person, as an object of study, is of more importance in the field of creativity than that of entrepreneurship. Creativity is a quality that is attributed to many people, but especially entrepreneurs (Morris & Kuratko, 2002). Creative people have different personality traits from other people, so they have a greater ability to generate new ideas (Cervone & Pervin, 2008), aspects that are fundamental when the discovery of entrepreneurial opportunities is studied.

Therefore, this research is based on the claim that creativity is multifaceted and must be integrally explored. So, in order to understand their contribution to the discovery of entrepreneurial opportunities, the influence of distinctive aspects of people, elements of the creative process, product features and characteristics of the environment are analyzed. To this end, this paper is based on research traditions or paradigms in the field of creativity to study a central theme and of present topicality in the entrepreneurship field.

Particularly, the CPS model and creative thinking style, combined with personality traits, are visualized as tools that can help better understand what happens in the initial stage of the entrepreneurial process, which corresponds to the discovery of opportunities and up until today, the literature has not given sufficient explanation to how entrepreneurial opportunities arise. The purpose of this paper is twofold. First, to explore the relationship between the CPS model and the creative thinking style. Second, to examine the personality traits associated to the CPS model and to creative thinking style, both in a specific context.

To achieve these objectives, the paper is organized as follows: After the introduction, a literature review is done and the working hypothesis are established. Then, the methodology followed in this research is explained to then move on to the description of results. In a final section, we discuss the results and the conclusion of the work

2. Literature Review and Hypothesis

In 1953, Osborn developed the CPS model. This model provided a structured set of principles, tools and stages of the creative thinking framework. The initial objective of Osborn (1953) was to help individuals and teams to solve complex problems. The original model included seven steps: (1) Orientation-pointing up the problem; (2) Preparation-gathering pertinent data; (3) Relevant Analysis-breaking down the relevant material; (4) Hypothesis-piling up alternatives by way of ideas, (5) Incubation-letting up to invite illumination; (6) Synthesis-putting the pieces together; and (7) Verification- judging the resultant ideas.

Since its introduction, the CPS model has been an object of study and ongoing review, which is why it has been identified as one of the most used to stimulate and develop creative thinking skills (Scott, Leritz, & Mumford, 2004). The work of Isaksen and Treffinger (2004), Puccio, Murdock and Mance (2005) and Puccio, Firestein, Coyle and Massuci (2006) show a chronological review of the CPS model and the different models and proposals that have been derived from it. The conclusion of Puccio et al. (2005) in this regard was different models from the same genetic stock.

Currently, there are different versions of the CPS model that include various stages of the creative process (Puccio, Murdock, & Mance, 2007; Isaksen, Dorval, & Treffinger, 1994; Basadur, Runco, & Vega, 2000). In this sense, Puccio (1999) explored whether people had cognitive preferences for different stages of the CPS model and his findings can be summarized in three principles: (1) The creative process is a way of thinking and problem solving is a capability that every person has; (2) The creative process involves a series of mental operations that can be identified; (3) People have different preferences for different mental operations (i.e., cognitive styles), so it is expected that they have preferences for different stages of the CPS model.

These principles guided the development of a self-assessment tool that would help identify the preferences of a person for the stages of the CPS model. This tool is known as FourSight. Its origin can be located in the Buffalo Creative Process Inventory (BCPI) and it identifies four stages in the creative process (Puccio, 2002; Puccio & Grivas, 2009). These stages are known as problem clarification, idea generation, solution development, and implementation. DeCusatis (2008) summarizes very well every stage of FourSight. These are discussed below: (1) Clarify the situation- clarifying a situation means to bring a problem, challenge or opportunity to its most granular level; (2) Generate ideas- generating ideas, or fluid ideating, requires divergent thinking. Divergent thinking is about looking at the big picture, and playing with potentially abstract concepts that stretch our imagination; (3) Develop a solution- Select a promising idea (or series of ideas), and make it a workable solution is about giving the idea(s) the support required to develop them; (4) Implement a plan- implementation is about giving structure to the idea until it becomes a reality.

On the other hand, in 1976 Kirton developed a cognitive based theory of creativity, in which, instead of focusing on the type of cognition associated with steps of the CPS model, it focused on the expression of creativity through cognitive styles qualitatively different. A cognitive style refers to the different ways in which a person prefers to organize and process information (Messick, 1984). In other words, it is an individual´s preferred style to solve problems and it is highly resistant to change (Kirton, 1994).

Kirton’s theory (1976, 2003) is interested in the cognitive style that people predominantly use. The theoretical continuum of Kirton goes from an adaptive preference, in which it is preferred to work within the current scheme to improve it, to an innovative orientation, which seeks to go beyond the current paradigm or system. Kirton’s theory, unlike other theories of creativity, analyzes the different forms of creative expression, so both styles (adaptive or innovative) are equally important and necessary for the proper functioning of any organization (Isaksen, Lauer, & Wilson, 2003).

Kirton (1976) developed a scale to measure creative thinking style, the Kirton Adaption-Innovation Inventory (KAI), which includes three subscales. The first one is known as Sufficiency of Originality (SO), which assesses the degree to which a person prefers to generate original ideas when faced with a problem (an innovative trend) or, focus on a small number of more viable ideas (a tendency of adaptation). The second subscale is Efficiency (EFF), which marks a preference for detail, accuracy, thoroughness and reliability. Finally, the third subscale called Rule/Group Conformity (RGC), which considers the preference for working with standards, guidelines or systems in organizational structures within which problem solving occurs.

Previous studies have already linked the CPS model with the theory of Kirton. Puccio (1999) was the first to perform work in this line of research by stating that people have preferences for different cognitive processes, thus having preferences for certain stages of the CPS model. Rickards and Puccio (1992) found that adapters and innovators make their best contribution to the solution of problems in different stages of the CPS. Moreover, McFadzean (1998) finds that adapters and innovators prefer to use different tools to help in the solution of problems. In this line of thought, Puccio (1999) found a relationship between the EFF subscale in the theory of Kirton and clarifier stage in FourSight, results that were subsequently corroborated (Puccio, 2002). The above analysis makes it possible to deduce that there is a relationship between the CPS model and creative thinking style. Therefore, more formally, the following hypothesis is established:

Hypothesis 1: People, when identifying an entrepreneurial opportunity, have cognitive preferences in the creative process that are related to their thinking style.

One important aspect that is not openly considered when working with creative thinking style and the CPS model are the distinctive traits of those who carry out these processes. In the latest CPS model made by Puccio et al. (2007), it is mentioned that some mental abilities and affective qualities may favor the execution of some stages of the CPS model. In this sense, Puccio and Grivas (2009) comment that personality traits can help uncover the emotional qualities associated with creativity, both in its style and its process. Martinsen and Kaufmann (1999) stated “cognitive style can be placed at the intersection between personality and cognition” (p. 274).

Personality is a singular trait exhibited by an individual who is defined because of his dynamic interaction with the environment (Cervone & Pervin, 2008). Personality traits can be categorized and ranked based on its intercorrelations (DeYoung, Quilty, & Peterson, 2007). The arrangement of these categories has been a central theme among those who have studied personality throughout the years. Significant progress has been made, which has led to a reasonable degree of consensus as to the composition of a suitable categorization scheme. The Five Factor Model (FFM) or Big Five is one of the most widely used classification systems of personality traits. The origin of this model can be found in the work of Fiske (1949) and during the following decades, several studies have confirmed its stability in a structure of five factors (Costa & McCrea, 1992; Digman, 1990; Goldberg, 1992; John & Srivastava, 1999; Funder, 2001; Judge, Bono, Ilies, & Gerhardt, 2002; Rantanen, Metsapelto, Feldt, Pulkkinen, & Kokko, 2007; Furham, 2008). Nowadays, there are different measures of the five factors. However, they all share the same fundamental factors.

McCrea and Costa (1987) provide a good summary of each of these factors, which is mentioned below: 1) Neuroticism-it reflects the tendency to be anxious, defensive, insecure, and emotional. Neurotics possess facets such as angry hostility, depression, self-consciousness, impulsiveness and vulnerability; (2) Extraversion-individuals with an extraversion personality are social, assertive, active, bold, energetic and adventurous. Extroverts are dominant in their behavior and expressive when interacting with others; (3) Openness to experience-individuals whose personality is marked by an openness to experience possess traits like imagination, unconventionality, autonomy, creativity and divergent thinking. Openness to experience encompasses aspects like fantasy, feelings, actions, ideas and values; (4) Agreeableness-Agreeable individuals are altruistic, warm, generous, trusting and cooperative. Agreeableness includes dimensions like trust, straightforwardness, altruism, compliance, modesty and tender-mindedness; (5) Conscientiousness-Conscientiousness encompasses dependability, responsibility, dutifulness, deliberation, achievement orientation and a concern for following established rules. They are cautious, thoughtful and have a tendency to strictly adhere to standards of conduct.

FFM's popularity has caused it to be used in different research projects, contexts and cultures throughout time. The interest of this study is its relationship with creativity. Several studies have already approached and described results of this relationship. For instance, King and Anderson (2002) mention that the creative personality is associated with tolerance for ambiguity, originality, intelligence above average and determination for success. Moreover, Feist (1998, p. 299) mentions, "creative people are more autonomous, introverted, open to new experiences, norm doubting, self-confident, self-accepting, driven, ambitious, dominant, hostile and impulsive". Divergent thinking is usually associated with creativity because it stimulates the generation of new ideas and radical problem solving (Im, Montoya, & Workman, Jr., 2013). It has also been found that creative thinking style and spontaneity are associated with certain personality attributes (Kelly, 2006).

It appears that extraversion and openness to experience are positively related to creativity. However, different results cannot affirm this. This diversity of outcomes can be attributed to dimensions of context, sample selection and other related factors. As reported by Prabhu, Sutton and Sauser (2008), a creative personality changes over time and from one professional field to the other. Therefore, this research establishes the following assumptions:

Hypothesis 2: The personality traits of who identifies an entrepreneurial opportunity are associated with cognitive stages of the creative process.

Hypothesis 3: The personality traits of who identifies an entrepreneurial opportunity are associated with elements of his creative thinking style.

3. Research Methodology

3.1 Participants

The study involved the participation of 183 people, of whom 65 were women and 118 were men. The average age of participants was 24 years and they all had professional studies. The main academic background of participants was business administration, marketing, international business, information technology management, economics, hotels and restaurants management, accounting, architecture, industrial engineering, electronic engineering and logistics engineering.

The identification of this group of people was through the registration process to an entrepreneurial opportunity contest in 2013 and 2014. A requirement for participation in this contest was the delivery of a written report with the proposal of an entrepreneurial opportunity.

The report was supposed to be no more than 10 pages long and it had to describe the opportunity around five areas: strategic definition, market and competition, operations, organization and financing. Thus, the product of the creativity was controlled. In other words, the document described the development of an entrepreneurial opportunity. It is worth mentioning that for the purposes of this research, the content of the proposals that were registered for the contest were unknown.

Regarding the creative environment, it is also necessary to mention that all contest participants attended informative talks, in which they were provided with an explanation of the contents of the proposal as well as individual sessions and group work with the purpose of clarifying doubts and discussing the proposals.

3.2 Data Collection

Data collection was conducted through a questionnaire that was prepared specifically for this project. The questionnaire included the three dimensions of interest to this research: CPS model, creative thinking style and personality traits. Questionnaires were sent electronically through the contest organizers, so that the use of the electronic version could contribute to obtain a greater response. Initially the questionnaire was sent to 208 participants. However, 183 responses were received and it was with these participants that the data analysis was developed. As suggested by Armstrong and Overton (1977), an analysis was performed to identify whether there was a difference between those who answered the questionnaire at the beginning or at the end of the data collection period. The results confirmed that there was no bias, therefore making the combination of data obtained from questionnaires possible.

3.3 Measurements

The measurement of the model CPS was conducted with FourSight, which consists of 36 statements that are divided into four subscales and describe the activities associated with different stages of the creative process: clarifier, ideator, developer and implementer. For each statement, the person responds to how descriptive it is the activity performed to solve problems creatively, seeking to identify the major preference. Responses are assessed with a Five point Likert scale ranging from “not like me at all” to “very much like me.” The average for each subscale represents the evaluation of each person.

To measure creative thinking style, KAI scale, which stems from the theory of Kirton (1976, 2003) was used. The KAI scale consists of 32 statements, of which 13 of them measure the SO, 7 measure the EFF and 12 measure the RGC. For each statement, the person responds on a Five-point Likert scale according to how much you agree with each statement. As in the FourSight, the average in each subscale represents the evaluation of each person.

Personality was measured with the 50-item scale International Personality Item Pool that measures the five broad domains of the FFM (IPIP, 1999). The item pool was developed as part of an international collaborative effort to develop broad-bandwidth, noncommercial measurement instruments which can be freely compared to other instruments, and refined over time (Goldberg, 1999). Participants are presented with statements and are asked to indicate how accurately each one describes them on a five-point Likert scale.

3.4 Data Analysis

For data analysis, first normality distributions were revised by observing the values in the Skewness and Kurtosis tests. Skewness values higher than 2 and higher than 7 on Kurtosis test were not obtained. The values of arithmetic mean and standard deviation of the distributions of each construct were analyzed.

Initially the Cronbach’s alpha were evaluated to determine the internal validity of the variables and consequently of the constructs, finding acceptable values of above 0.7 (Hair, Black, Babin, & Anderson, 2007). Despite the tradition in different measurement scales that were used in this work and which confirm the study´s reliability, a confirmatory factor analysis was conducted. The tests used were χ^2/df, Goodness-of-Fit Index (GFI) (Jöreskog & Sörbom, 1996) and the Comparative Fit Index (CFI) (Bentler, 1992). The threshold for χ^2/df should be less than three or less than two in a more restrictive sense (Premkumar & King, 1994). The GFI and CFI values should be above 0.90 (Jöreskog & Sörbom, 1996). It was decided to observe another index, specifically the AVE (Average Variance Extracted), which assesses the convergent validity of the variables and must have values of over 0.5, in order to explain more than half of the variance of its items (Hair et al., 2007).

A correlation analysis was conducted to determine the degree of relationship between variables of the CPS model and the creative thinking style. Moreover, there was a multiple linear regression analysis to determine the degree of association between the variables of this study. In this sense, each of the components of the FourSight and the KAI were treated as independent variables. The independent variables in the regression model were each element of the FFM. Considering the possibility that there existed multicollinearity, the tolerance and the Variance Inflation Factor (VIF) tests were developed. A value of less than 0.20 tolerance and VIF value that exceeded 5 indicated a problem of multicollinearity (O’Brien, 2007). The results indicate that the regression in this study had no problems of multicollinearity.

4. Results

Table 1 presents the results of the descriptive statistics, Cronbach’s alpha values, confirmatory factor analysis and convergent validity. Through the evaluation of the values presented in Table 1 shows that the internal validity of all constructs was satisfactory (Cronbach’s alpha) because values of above 0.7 were observed. Regarding the confirmatory factor analysis, Table 1 shows that the FourSight, KAI and FFM obtained good adjustment in each of the three evaluation models thus values within the recommended limits were obtained. All the factors of all the items of the constructs were loaded into acceptable and significant ranges of p = 0.01, whose range was between 0.63 and 0.84 indicating a convergent validity (Anderson & Gerbin, 1988). Finally, all AVE values are satisfactory since they are higher than 0.5.

Table 1. Descriptive statistics and confirmatory factor analysis

	Variable	M	SD	α	χ^2/df	GFI	CFI	AVE
FourSight	Clarifier	3.86	0.83	0.80	2.81	0.94	0.95	0.56
	Ideator	4.02	0.57	0.82				0.63
	Developer	3.44	0.98	0.79				0.61
	Implementer	3.11	1.28	0.73				0.59
KAI	SO	4.22	0.51	0.85	1.98	0.91	0.93	0.63
	EFF	3.91	0.77	0.80				0.55
	RGC	4.07	0.62	0.78				0.54
FFM	Neuroticism	3.01	1.11	0.82	1.87	0.96	0.94	0.62
	Extraversion	3.88	1.35	0.83				0.60
	Openess to experience	4.15	0.78	0.84				0.58
	Agreeableness	3.73	1.05	0.81				0.54
	Conscientiousness	4.01	0.54	0.89				0.55

In an initial analysis based on the means and standard deviation, it can be observed that the respondents to the Ideator variable of the FourSight obtained a higher average value. Regarding the general preference between Adaptive and Innovative, which helps identify the KAI scale, the sample showed an average value of 112.5, indicating a slight orientation to innovation. Finally, of the five variables of FFM, Openness to Experience obtained a higher average.

Table 2 shows the relationship between the variables of FourSight and KAI. In the analysis, five correlation coefficients could be identified and which resulted statistically significant. The most striking correlation was between SO and Ideator ($r = 0.33$, $p < 0.01$). Also, SO showed a significant correlation with the Clarifier stage ($r = 0.22$, $p < 0.05$). The other variable that is also significantly correlated with two stages of FourSight was RGC. One was with the Developer stage ($r = 0.23$, $p < 0.05$) and the other was with the Implementer stage ($r = 0.21$; $p < 0.01$). Finally, a significant relationship between EFF and Ideator was also found ($r = -0.24$, $p < 0.05$).

Table 2. Correlation coefficients between FourSight and KAI

KAI	FourSight			
	Clarifier	Ideator	Developer	Implementer
SO	0.22**	0.33***	-0.08**	-0.09**
EFF	0.12**	-0.24**	-0.11**	-0.06**
RGC	-0.09*	-0.14*	0.23**	0.21***

Note. **p* < 0.10; ***p* < 0.05; ****p* < 0.01.

With the results in Tables 1 and 2, Hypothesis 1 of this research can be confirmed. It was identified that respondents to the proposals in each of the two scales, have a cognitive preference. In this case, there is a slight preference for Clarifier and Ideator of the CPS model, which in turn are correlated with a style of creative thinking that favors the SO and EFF stages. The analysis also shows the relationship between RGC with the Developer and Implementer stages of the CPS model.

Table 3 presents an analysis of the relationship between FourSight and FFM by calculating the correlation coefficients. Six of the 20 correlation coefficients were significant. Correlations were found in three dimensions of the FFM. The strongest correlation was found between Ideator and Openness to experience ($r = 0.41$, $p < 0.05$).

Table 3. Correlation coefficients between FourSight and FFM

FourSight	FFM				
	Neuroticism	Extraversion	Openess to experience	Agreeableness	Conscientiousness
Clarifier	-0.25**	0.12*	0.24***	0.14**	0.22***
Ideator	-0.15**	0.18***	0.41**	-0.07**	-0.29**
Developer	0.04*	0.16**	0.28***	0.04**	0.10**
Implementer	0.11**	-0.08*	-0.09*	0.16*	0.16*

Note. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table 4 shows the regression coefficients (beta) for each variable of the FourSight in relation to the five personality dimensions of the FFM, as well as total variance explained (R^2). It can be observed that six betas are statistically significant. Most of the significant relationships were associated with the Ideator stage of the FourSight. Here's something interesting to observe, as the Ideator stage is related to three dimensions of the FFM, with Extraversion ($\beta = 0.22$, $p < 0.01$), Openness to experience ($\beta = 0.31$, $p < 0.01$) and Conscientiousness ($\beta = -0.21$, $p < 0.05$). The Clarifier stage was also significantly associated with two dimensions of the FFM, although in opposite directions, Neuroticism on one hand ($\beta = -0.19$, $p < 0.05$) and on the other Conscientiousness ($\beta = 0.21$, $p < 0.05$). The Implementer stage of the FourSight reports no relationship to the FFM. Therefore, hypothesis 2 of this paper can be confirmed, because personality traits that are associated with the CPS model stages have been identified. Particularly, the greatest variance explained is found in the Openness to experience dimension of the FFM, which has a good partnership with the Ideator and Developer stages.

Table 4. Regression coefficients between FourSight and FFM

FourSight	FFM				
	Neuroticism	Extraversion	Openess to experience	Agreeableness	Conscientiousness
Clarifier	-0.19**	0.15**	0.10***	0.13*	0.21**
Ideator	-0.12**	0.22***	0.31***	-0.05*	-0.24**
Developer	-0.08*	0.28**	0.24***	-0.09*	0.13**
Implementer	0.09*	-0.10**	0.13**	0.11*	0.04*
R^2	0.13	0.15	0.21	0.09	0.19
Adjusted R^2	0.11	0.12	0.19	0.06	0.18

Note. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table 5 shows the correlation coefficients between KAI and FFM. Four correlation coefficients were statistically significant. Correlations were found in three dimensions of the FFM. The SO variable was best related to FFM, being the Conscientiousness dimension ($r = -0.34$, $p < 0.05$) the most related. It was also related to the dimensions Openness to experience ($r = 0.32$, $p < 0.01$) and Extraversion ($r = 0.19$, $p < 0.01$). A significant relationship between RGC and Conscientiousness was also found ($r = 0.27$, $p < 0.05$).

Table 5. Correlation coefficients between KAI and FFM

KAI	FFM				
	Neuroticism	Extraversion	Openess to experience	Agreeableness	Conscientiousness
SO	-0.10**	0.19***	0.32***	0.16***	-0.34**
EFF	-0.06*	-0.12*	-0.17**	-0.11**	0.11*
RGC	0.15**	0.08*	0.13**	-0.07*	0.27**

Note. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table 6 shows the regression coefficients for the three KAI variables in relation to the five personality dimensions of the FFM and the total variance explained. The variable SO had three significant relationships with FFM dimensions. The first was with Openness to experience (β = 0.38, p < 0.01), then Conscientiousness (β = -0.26, p < 0.05) and finally with Extraversion (β = 0.23, p < 0.05). Moreover, the Conscientiousness dimension also showed another significant relationship with the RGC (β = 0.28, p < 0.05) variable. With these results, we can prove hypothesis 3, since the personality traits of the respondents are associated with elements of their creative thinking style, particularly with the SO and RGC.

Table 6. Regression coefficients between KAI and FFM

KAI	FFM				
	Neuroticism	Extraversion	Openess to experience	Agreeableness	Conscientiousness
SO	-0.14**	0.23**	0.38***	0.12*	-0.26**
EFF	-0.09*	-0.04*	-0.14**	-0.06**	0.08*
RGC	0.11*	-0.07*	-0.16**	-0.09**	0.28**
R^2	0.09	0.14	0.20	0.08	0.18
Adjusted R^2	0.08	0.12	0.18	0.06	0.16

Note. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

4. Discussion

The results of this work can be discussed in three aspects. The first has to do with the relationship between problem solving and thinking style that helps solve these problems creatively. This paper has provided empirical evidence linking common elements that are assessed by different scales. Specifically, the most significant relationship is found between SO-Ideator. In other words, people who identified an entrepreneurial opportunity have a slight preference for an innovative creative thinking style. In addition, this style of thinking shows a greater ability to work with the Ideator stage of the CPS model. This relationship is shown as indicated by the theory. For instance, someone who interacts better with the Ideator stage generates many ideas, notes a problem from a new angle and prefers divergent thinking (DeCusatis, 2008). An interesting aspect observed in the results is that the Ideator stage also has a significant relationship with the EFF variable, but in a negative sense. This may indicate that the more detailed and precise a person wants to be, the more the creativity variable is impaired. From this perspective, convergent thinking is negatively related to what is expected in the Ideator stage. Interestingly, the theory would point out that EFF should be more related to the Clarifier stage (Puccio, 2002), but the results indicate otherwise. One way to interpret this result is that by following an approach, which favors more viable ideas (an adaptive approach) creativeness and innovativeness may be inhibited in Kirton’s terms (2003).

Another interesting aspect to mention is that the RGC variable is related to the Developer and Implementer stages. It can be concluded that people who resolved the questionnaires, with this result, take into account the need to adapt to present circumstances if necessary, in order to implement their entrepreneurial ideas. This cannot be categorically stated since the viability of the entrepreneurial opportunities identified by individuals is unknown for access to documents that were submitted by them was not provided. The results do allow to comment that a preference to follow rules or guidelines by those who identify Entrepreneurial opportunities can help them identify aspects that can facilitate or inhibit the implementation of proposals (DeCusatis, 2008). In essence, it can be stated that people who participated in this study, when identifying an entrepreneurial opportunity (initial step in solving a problem), prefer a creative thinking style which is more innovative, but when analyzing the implementation of this same opportunity (final step to problem solving) a creative thinking style which is more adaptive is more important.

The second aspect to discuss is the relationship between the CPS and FFM model. First, it is interesting that the Clarifier stage is most related to dimensions of the FFM. Moreover, the dimension Openness to experience was the most related to the stages of the CPS model. The theory would state that the Ideator stage would be the most related to the dimensions of the FFM, but the results obtained in this study would indicate otherwise. This could be interpreted by the nature of the sample that was analyzed. They were people who do better in the process of what is important and what is not, as well as in the interpretation of the history of the situation that leads them to identify the entrepreneurial opportunity. An expected result is that the dimension Openness to experience was the most related to the stages of the CPS model, especially with the Ideator stage, similar to the results obtained by Puccio (2009).

In regard to the association of the stages of the CPS model with personality traits, the Openness to the experience and Conscientiousness dimensions resulted to be the most representative dimensions. The first one has an explanation of variance of 19%, while Conscientiousness 18%. Interesting to say is that in both variances, the Ideator stage was the most representative. Another aspect to highlight is that once again the Clarifier and the Ideator stages were the largest contributors to explain the variance in personality traits, except Agreeableness. The two dimensions in the personality of the sample analyzed offer two different explanations. Openness to experience is confirmed as a personality trait that facilitates the imagination, autonomy and divergent thinking, aspects that are critical to identifying entrepreneurial opportunities. Additionally, there was a combination of intelligence, creativity and motivation, what DeYoung, Peterson and Higgins (2005) called “cognitive motivated flexibility”. Furthermore, Openness to experience is related to a tolerance for ambiguity and a preference for complexity (McCrae & Costa, 1997), an aspect that is characteristic when identifying an entrepreneurial opportunity (Ardichvili, Cardozo, & Ray, 2003). This result sets the basis for considering that participants think in an esoteric way while fantasizing about the social value of their entrepreneurial opportunities. Thus, from these results, the importance of the CPS model in conscientiousness dimension is also observed. Chamorro-Premuzic (2006) had already discussed the importance of the orientation of achievement and perseverance in Conscientiousness, aspects that are linked to the identification of opportunities. It is not possible to determine the social nature of the entrepreneurial opportunities identified but judging by the results obtained, it may be thought that order, sense of duty and discipline distinguish people who identify entrepreneurial opportunities (Costa & McCrae, 1992). An interesting combination of the results obtained in this research, is that people who identified entrepreneurial opportunities were open to the experience and discipline. These personality traits are stronger in the initial stages of the CPS model, similar to the results obtained by Puccio and Grivas (2009).

The last part to comment on the results is the relationship between creative thinking style and personality traits. Again, SO is characteristic in the creative thinking style. Openness to experience and Conscientiousness once again standout as personality traits. Silvia et al. (2008) had already identified a relationship between a creative thinking style and personality traits that are open to new experiences. In this sense, Batey, Chamorro-Prezumic and Furnham (2010) mention that the probability of receiving creative experiences strengthens the enthusiasm and confidence of individuals to seek new experiences, aspect that has also been discussed by Prabhu et al. (2008). Moreover, Silvia, Kaufman, Reiter-Palmon and Wigert (2011) argue that being an open person, promotes learning and adaptability, which can generate more and better quality of ideas, in this case entrepreneurial opportunities.

5. Conclusion

The results of this study show that people who have a preference for an adaptive style of thought, unlike those who prefer a style of innovative thinking, correlate differently with the stages of the CPS model. Similarly, the results also indicate that some personality traits are associated with cognitive preferences, both in the creative process of problem solving and in the creative thinking style. These associations appear as established by the theory. Particularly two stages standout, the Clarifier and the Ideator in the CPS model and the subscale SO in the style of creative thinking. On the other hand, there are two dimensions of the FFM that also showed prominence, Openness to experience and Conscientiousness.

The relationships between these variables and dimensions provide personality profiles and cognitive skills that favor the discovery of entrepreneurial opportunities. Future research may focus on describing the degree of innovation in entrepreneurial opportunities identified. Upon including implementation of the proposal, or the innovation, it may be interesting to know how the other two stages of the CPS model behave.

The results also provide some theoretical implications that may help the entrepreneurship field, to know what steps, processes and personality traits promote creativity of entrepreneurs, which can result in bigger and better identification of entrepreneurial opportunities. Future work may investigate some of the relationships that have been identified in this study.

Finally, the profile of the sample in this study contributed to the results obtained, as they were people who participated in a contest of entrepreneurial opportunities. It would be interesting to explore the behavior of a more open sample, such as entrepreneurs who are already marketing. Moreover, the consideration of gender can also be interesting, since women may express combinations of different styles of thinking and behavior.

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Dividend Policy of Jordanian Firms: Stability Tests and Survey Results

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Abstract

The aim of this study is to examine listed Jordanian firms in terms of the issue of dividend policy stability. In more specific terms, the paper complements the econometric analysis of dividend stability with a survey of the Chief Financial officers (CFOs). Based on a total of 40 industrial firms and the time period 2002-2013, the results of the panel data analysis indicate that Jordanian firms follow stable dividend policy. In addition, the survey results support the econometric conclusions. Based on the results of this paper, it is recommended that future research should examine the issue of what really determines the dividend policy of Jordanian firms. In addition, given the fact that the industrial firms follow stable dividend policy, it would be extremely interesting to investigate whether or not these firms manage earnings in order to meet their dividend stability objective.

Highlights:

- Examining listed Jordanian industrial firms in terms of if the firms adopt stable dividend policy?
- The results reveal that the sample of firms do follow stable dividend policy Do Chief Financial officers' (CFOs) views on dividend policy support or contradict the actual behaviour of dividend policy?

Keywords: Amman securities exchange, dividend policy, clientele effect, stability, survey

1. Introduction

Standard textbooks teach students that the subject matter of corporate finance deals with three long-term financial decisions. First, in what real assets should firms invest? Second, how firms determine their structure of capital? Third, what proportion of their net incomes should firms distributing in the form of cash or stock dividend to their shareholders?

To give answers to the above-mentioned financial decisions, corporate finance has developed a myriad of concepts and techniques to help financial managers in the process of maximizing firms' stock prices. These include, for example, capital budgeting techniques, optimal capital structure, cost of equity capital, the weighted average cost of capital, and many others.

As far as dividend policy is concerned, the classical literature provides us with two viewpoints. First, based on the arguments put forward Miller and Modigliani (1961) dividends policy has no impact on the value of firms. Indeed, this view is supported by Black (1976) whom declared that the harder we look at the dividends image, the further it seems similar to a puzzle with pieces that just don't fit mutually. In contrast, Gordon (1959) and Lintner (1956) argue that dividend policy is an important determinant of stock price.

Irrespective which argument is more relevant, it is interesting to note that the "empirical evidence on whether dividend policy affects a firm's value offers contradictory advice to corporate managers" (Baker et al., 2011). These contrasting views have led to the publication of many papers that examine dividend policy. This literature, it can be argued, relies on three main approaches. The first approach relies on econometric analysis of what determines dividend policy. The second approach relies on questionnaires whose aim is to understand how chief financial officers set the dividend policy of their firms. Finally, the third approach examines whether or not firms follow stable dividend policy.

Relative to the above brief account of dividend policy, this paper examines listed Jordanian industrial firms in terms of two questions:

(1) Do firms adopt stable dividend policy?

(2) Do Chief Financial officers' (CFOs) views on dividend policy support or contradict the actual behaviour of dividend policy?

The rest of the research is structured as follows. Section 2 in brief reviews the relevant literatures. In section 3, the data and methodology, and empirical results are presented and discussed. Finally, the last section summarizes and concludes.

2. Dividend Policy: Literature Review

The issue of dividend policy has managed to keep its important standing in the finance literature. Indeed, this puzzling financial decision has led to the formulation of many theories. These include the bird in the hand theory, agency costs, firm life cycle, asymmetric information and signaling, tax and clienteles, and the catering theory. These, and other theories, have resulted in the publication of many empirical papers. Indeed, the number is too large to review in any single paper. However, this literature can be classified under three main approaches.

The first approach uses econometric analysis of published financial data to test one or more hypotheses. In other words, typically this literature regresses a measure of dividend policy on a set of variables including company profitability, firm leverage, size, growth opportunity, and firm liquidity. In addition, this econometric analysis includes tax rate, systematic risk, legal constraints, structure of ownership, and market power as possible determinant of dividends policy. To name but a few, this literature includes Bhattacharya (1979), Aharony and Swany (1980), Asquith and Mullins (1983), DeAngelo et al. (1996), Benartzi et al. (1997), Grinstein and Michaely (2005), Amidu and Abor (2006), Barclay et al. (2009), Afza and Mirza (2010), Gill et al. (2010), Thanatawee (2013), Booth and Zhou (2015), and many others. Relative to this literature, it is useful to note that Baker and Weigand (2015) provide a review of the literature which concerns dividend policy.

The second approach relies on surveys of financial officers. Based on pioneering work by Graham and Harvey (2001), many papers examine whether or not financial officers use the recommended tools, techniques, and concepts, including dividend policy, explained in standard finance textbooks. Some of the American survey studies are Gitman and Forrester (1977), Moore and Reichert (1983), Poterba and Summers (1995), Shao and Shao (1996), Bodnar et al. (1998), Bruner et al. (1998), and Graham and Harvey (2001). Surveys of executive views on finance issues in the UK, Australia, New Zealand, Singapour, Hong Kong, Indonesia, Thailand, and Ireland have also been carried out. These studies include Kester et al. (1999), and Parry (2001), Dhanani (2005), McCluskey (2007). In addition to the above, more recent papers have also been published including those by Troung et al. (2006), Butt et al. (2010), Mutairi et al. (2012), Baker et al. (2013), and Ozo et al. (2015).

The third approach follows the publication of the classic paper by Lintner (1965) which examines the stability of dividend policy. In other words, this paper attempts to examine if companies do not tend to increase dividends unless they believe that the increase in their profits is "permanent". This finding has also been supported by many papers including Cheung and Roy (1985), Lowntein and Kato (1995), Lasfer (1996), Dewenter and Warther (1998), Aivazian (2001), Nisim and Ziv (2001), Farsio et al. (2004), Amiedu (2007), Howat et al. (2009), Ajanthann (2013), Leon and Putra (2014), and Tran et al. (2014).

As far as the stability issue of dividend policy is concerned, the empirical literature estimates two main models and these are referred to as the Lintner Model (1956) and Fama and Babiak Model (1968). These are outlined below.

$$DPS_{i,t} = \alpha_1 + \beta_1 EPS_{i,t} + \beta_2 DPS_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

$$DPS_{i,t} = \alpha_1 + \beta_1 EPS_{i,t} + \beta_2 DPS_{i,t-1} ++ \beta_3 EPS_{i,t-1} + \varepsilon_{i,t} \quad (2)$$

where DPS is the dividends per share (i) in time period t, EPS is earnings per share.

Based on the estimated results, the literatures conclude that firms pursue stable dividends policy if the coefficients of the lagged value of dividend per share (DPS) are positive and statistically significant. In other words, this positive coefficient implies that firms do not increase (decrease) their dividend per share unless they think the increase (decrease) in their net income is permanent.

As mentioned above, the Lintner (1956), Fama and Babiak (1968) model have been estimated by many researchers. On average, this literature provides plenty of evidence whoch shows that firms do follow stable dividend policy. However, within this aspect, it is interesting to note that few papers reported high instability in dividend policy including that published by Adaoglu (2000). Based on the time period 1985-1997 and a total of 76 industrial and commercial listed Turkish firms, it is stated that "any variability in the earnings of the corporation is directly reflected in the level of cash dividends. In other words, earnings instability results in instability in dividends" (Adaoglu, 2000).

3. The Data, Methodology and Empirical Results

To examine dividend policy in terms of its stability aspect, the researchers examined the dividend per share of all listed industrial firms (65 in total) and managed to collect the necessary data for a total of 40 firms during the period 2002-2013. Based on this time period 2002-2013, these firms (40) had a total of at least 8 years of cash dividends.

Naturally, the inclusion of firms with zero dividend per share would bias the estimation results. However, following Dwenter and Warther's (1998) methodology, the presence of 8 years out of 13 years positive dividend per share is chosen so that the estimated coefficients would not "suffer" from the zero dividend per share. Based on this principle, the analysis is based on a total of 480 balanced observations.

The classical paper by Lintner (1956) put forward the following model:

$$TDi,t = r_i \ P_{i,t} \tag{3}$$

$$TD_{i,t} - D_{i,t-1} = \alpha_i + c_i\,(TD_{i,t} - TD_{i,t-1}) + \varepsilon_{i,t} \tag{4}$$

where $TD_{i,t}$ is the target and optimum level of dividend in time period t of a company i, and r_i is the targeted payout ratios, $P_{i,t}$ is the rank of net profit, $D_{i,t}$ is the real dividend imbursement in time period t, and $\varepsilon_{i,t}$ is the error term.

Expression (4) implies that dividend payment do not adjust to their optimum level immediately. This adjustment process is partial. Also, the positive constant α_i indicates that firms are unwilling to cut dividend. The coefficient (c_i) indicates that dividends policy is stable and also implies that firms may not desire to instantly alter dividend payments to the target ratio (r_i). If we merge expression 3 and expression 4, we can write the following expression:

$$TD_{i,t} = \alpha_{i,t} + bP_{i,t} + dTD_{i,t} + \varepsilon_{i,t} \tag{5}$$

where b is equal to cr and d is equal (1-c). In addition, and to test the stability of dividend policy, expression 5 can be re-written as:

$$DPS_{i,t} = \alpha_1 + \beta_1 EPS_{i,t} + \beta_2 DPS_{i,t-1} + \varepsilon_{i,t} \tag{6}$$

As previously stated, if the coefficient (β_2) is positive and statistically significant, one can conclude that firms do follow stable policy.

In Table 1 and Figure 1, we report the overall mean values of dividend per share and earnings per share and their annual mean values respectively. On average, the mean values of dividend per share (0.150) and earning per share (0.232) imply that our sample of firm distributed about 65 percent of their net income in the form of cash dividends. In addition, it is interesting to note the annual fluctuations in both dividend per share and earning per share (Figure 1). Clearly, the Figure reflects the observation that earning per share fluctuates more than dividend per share. Indeed, the maximum and minimum mean annual values of earning per share are equal to 0.344 and 0.211 respectively. The maximum and minimum values of dividend per share, on the other hand, are equal to 0.181 and 0.143.

Table 1. Divided per share and earnings per share: basic statistics

	DPS	**EPS**
Mean	0.150	0.232
Median	0.100	0.150
Maximum	1.500	1.962
Minimum	0.000	-0.671
Std. Deviation	0.186	0.297

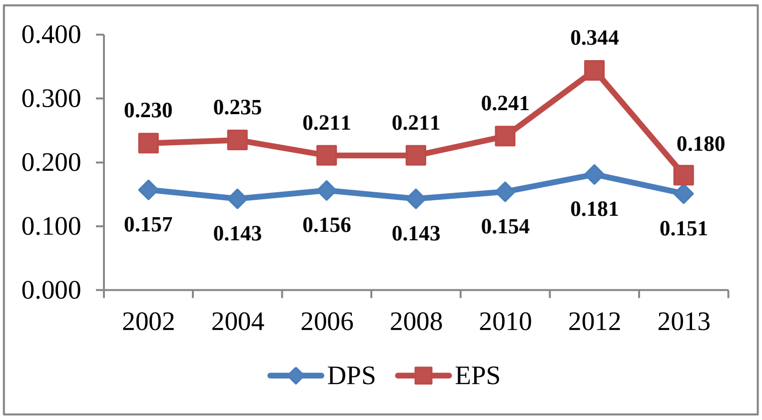

Figure 1. Annual DPS and EPS

The estimates of Lintner's, Fama and Babiak's models are presented in Table 2. This Table reveals a number of interesting findings.

First, the reported results reveal that the constant term is consistently positive and significant. This result indicates that the sample of firms is reluctant to reduce their dividend per share. Indeed, this is consistent with the original finding of Lintner (1956).

Second, as far as the coefficient of the lagged dividend per share is concerned, again, it is consistently positive and statistically significant. While these findings imply that firms do follow stable policy, it is important to note that the speed of adjustment is equal to 0.414 (Lintner model) and 0.370 (Fama and Babiak model). These values are higher than the 0.30 reported by Lintner (1956) for US firms and the 0.33 reported by Brav et al. (2005) for US firms (1984-2002), and lower than the 0.71 reported by Pandey and Bhat (2007) for Indian firms, and the 1.00 reported by Adaoglu (2000) for Turkish firms. The fact that high rapidity of adjustments indicates lesser smoothing and a lesser amount of stability, we can conclude that our sample of firms do follow stable dividend policy.

Finally Table 2 reveals the observation that our sample of companies that have a target dividend payout ratio equal to 0.659 (Lintner model) and 0.721 (Fama and Babiak model). These ratios are higher than the 0.50 reported by Lintner (1956), and the 0.459 reported by Fama and Babiak (1968) and close to the 0.697 reported by AlYahyaee et al. (2010) for Omani companies.

Table 2. Regression results: fixed-effect model

	Lintner Model	Fama and Babiak Model
Variable	Coefficient	Coefficient
C	0.035**	0.030**
EPS	0.273**	0.267**
DPS(-1)	0.341*	0.279*
EPS(-1)	--------	0.065***
Adjusted R^2	0.749	0.752
D-W Statistic	2.237	2.108
F-Statistic	27.203*	26.955*
Target Payout Ratio	0.659	0.721
Speed of Adjustment	0.414	0.370

Note. *, **, *** signify significance at the 99 percent, 95 percent, and 90 percent levels respectively.

In addition to the above econometric analysis of the stability issue of dividend policy, and based on the existing (survey) studies, we developed a survey and distributed it to the CFOs of the 40 industrial firms. To assess the

CFOs views on dividend policy, they were asked to point out their level of contract with a number of statements that are based on a five point scale. To develop the reaction rate, all the CFOs were then track up with a phone call and later on by a individual appointment to gather the "filled" photocopy of the review. In Table 3, we report the main findings. Based on the reported mean values, the following comments can be provided.

Table 3. Dividend policy: levels of agreement

	Disagreement			→	Agreement	
Statement	0	1	2	3	4	**Mean**
Dividend payout affects share price	0%	3%	22%	40%	35%	**3.07**
Firm should maintain uninterrupted dividends	1%	2%	15%	46%	36%	**3.14**
Reason for dividends policy changes should be explained to shareholders	2%	11%	14%	41%	32%	**2.90**
Dividends payments is a signal mechanism of firm projection	5%	27%	19%	24%	25%	**2.37**
Dividend announcements are used by the market in determining share prices	2%	5%	18%	41%	34%	**3.00**
Management must be responsive to owners' attitudes towards dividend policy	6%	8%	20%	25%	41%	**2.87**
Financing new investment projects must be secured before dividend distributions	3%	10%	31%	37%	19%	**2.59**

Note. The mean scores are designed by multiplying the % in each category with values 0 throughout 4 for ratings strongly disagree to strongly agree.

First, the CFOs scale the importance of dividend payout ratio relatively high (mean of 3.07). In other words, dividend payout is relevant.

Second, as far as the stability of dividend policy is concerned, we find that 82 percent of the CFOs agree that the company should adopt uninterrupted dividend payments. Indeed, the mean value of this statement is the highest (3.14).

Third, we find that 73 percent of the respondents agree with the statement that any changes in dividend policy must be explained to shareholders (clientele effect). An implication of this (clientele effect) is that the residual policy should not be adopted. Indeed, such a policy (residual) results in unstable dividend policy.

Finally, when we asked the CFOs whether new investment projects' finance must be secured before any dividend distributions, we find that the mean value of this statement is the lowest (2.59). This observation complements the responses that support dividend policy stability.

4. Summary and Conclusions

This paper examined a total of 40 listed Jordanian industrial firms in terms of the stability issue of their dividend policy. Based on the time period 2002-2013 and panel data analysis, the results reveal that the sample of firms do follow stable dividend policy. Furthermore, the survey questionnaire supports this empirical finding.

Based on the results of this paper, it is recommended that future research should examine the issue of what really determines dividend policy of Jordanian firms. In other words, factors like firm leverage, size, growth opportunity, firm liquidity, systematic risk, and ownership structure can be considered as possible determinants of dividend policy. Finally, the fact that our sample of industrial firms follows stable dividend policy, it would be extremely interesting to investigate whether or not these firms manage their earnings. Indeed, such management may be adopted to meet their dividend stability objective.

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Risk-Return Dynamics of the Chinese Stock Market: A Comparison between A, B and H Shares

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Abstract

This study compares the risk-return characteristics of the Chinese A shares with that of B and H shares over the period from January 1995 to June 2012. On average, B and H shares offer a better risk-adjusted return irrespective of whether the returns are measured in the Chinese Yuan (domestic perspective) or in the US dollar (foreign perspective) terms. However, a 'timeline' analysis indicates that the relative advantage arising from investment in B or H shares may be nearing the end. This finding appears to be a consequence of investment schemes which allow domestic and foreign investors to cross each other's territories after opening up of the Chinese market to foreign investors. Second, there is some evidence of exchange rate advantage for foreign investors, even though it is negligible. The results of our study suggest that any additional benefit generated by slight (average annual) appreciation of Yuan against the dollar is offset by an increase in volatility of returns measured in the US dollar.

Keywords: Chinese stock market, A-shares, B-shares, H-shares, the Sharpe Ratio

1. Introduction

Record economic growth and enormous market size of China have encouraged many multinational corporations and institutional investors to invest billions of dollars in China directly and indirectly. These foreign investments have generated millions of jobs for the Chinese workers. Many workers in resource rich countries like Australia, Brazil, Canada and South Africa have their jobs linked to the Chinese market as their employers' depend on Chinese demand for foreign resources. Other people have their wealth and retirement tied to the Chinese stock market through investment in Chinese stocks. As such the international community and the Chinese policymakers are always keen to enhance their understanding about the different aspects of the Chinese stock market. Furthermore, there are some market mechanisms which make the Chinese market relatively special from a research perspective. For example, Chinese stocks (Note 1) have various classifications such as A shares, B shares and H shares, and trading of these shares is subject to several restrictions related to foreign as well as domestic investors. In addition, trading occurs in different currencies namely, the Chinese Yuan (CNY), the US dollar (USD) and the Hong Kong dollar (HKD). Specifically, A shares listed on the mainland stock exchanges are priced in the Chinese Yuan and are mainly for investment by domestic investors. On the other hand, B shares were originally aimed at the foreign investors but since February, 2001, domestic investors have been allowed to invest in the B shares (Note 2). H shares listed in the Hong Kong stock exchange are priced in the Hong Kong dollar and mainly traded by foreign investors. However, domestic investors need to have lawful foreign currency funds. Interestingly, different classes of shares issued by the same company offer identical ownership and dividend rights, but price differences between the share classes have been reported as significant. In an article aimed at practitioners, Guo (2007) reported that on an average basis, H shares traded at a 35% discount and B shares traded at a 36% discount to A shares. Guo argues that the primary reasons for these price differences may be due to restrictions on capital flows and different investor bases for different share classes.

This study aims to conduct a detailed analysis of the risk-return characteristics of Chinese A, B and H shares from domestic and foreign investors' perspectives. B and H shares were originally aimed at foreign investors, and both classes have experienced almost similar discounts (at least for some initial period as reported by Guo, 2007) with respect to A shares. For the purpose of our study. B and H shares are considered one group and its performances are compared with that of A shares. Furthermore, both B & H shares are aimed at attracting foreign currency capital. Another reason for classifying B & H shares into same group is the availability of data as explained under the data section (section 3.3). Specifically, this study attempts to address the following research questions:

a. *Do the Chinese A share versus B and H share prices reflect similar risk adjusted return?* Considering that a fair comparison can be made only if returns are measured in the same currency, this question is examined both from the domestic (Yuan) and foreign (US dollar) investors view point.

b. *Does the risk adjusted return for the domestic and foreign investors differ?*

   Exchange rates play an important role in determining the return and risk from foreign investments. This question is aimed at isolating the impact of the exchange rate (between the Chinese Yuan and the US dollar) in relation to A shares (domestic) versus B and H shares (foreign).

c. *Have the relaxation of restrictions on shares trading (by domestic and foreign investors) impacted the risk-return characteristics of different share classes?*

   It is worth noting that Chinese regulatory authorities have introduced several schemes (as described under section 2.1) allowing cross investments in different share classes by domestic and foreign investors. These measures can be expected to reduce the pricing gaps (between different share prices) from early stages of the opening up Chinese market to more recent periods.

The rest of the paper is organized as follows: Section 2 provides an overview of the Chinese stock market and reviews the related literature. Section 3 describes the empirical framework and the data. Section 4 discusses appropriate measures of the Sharpe ratio and the development of several testable hypotheses. Section 5 presents empirical results and discusses implications of the study. Finally, Section 6 provides the summary and conclusions of the study.

2. The Chinese Stock Market and Related Literature

2.1 An Overview of the Chinese Stock Market

The Chinese securities market is regulated and supervised by the China Securities Regulatory Commission (CSRC) which is under the direct control of the State Council (Chinese cabinet). The Chinese securities market is composed of two stock exchanges (Shanghai Stock Exchange and Shenzhen Stock Exchange), three commodity futures exchanges and one financial futures exchange. The securities listed on these exchanges include stocks, bonds, investment funds, warrants, index futures and commodity futures. The stocks issued by the People's Republic of China (PRC) incorporated companies are divided into A, B, H shares.

In general, all categories of stock shares have the same voting rights and cash flow rights (e.g., they are entitled to the same dividends). They differ only in the types of owners. The state and the legal person stock shares represent the government ownership, while the individual stock shares (domestic and foreign) represent private ownership. For all categories of stockholders, the board of directors is the governance mechanism, and it adopts a two-tier structure, i.e., the upper and lower boards. The upper board is composed of non-executive directors for supervisory purpose, while the lower board is made up of executive directors for day-to-day management.

*A shares are s*tocks of PRC incorporated companies listed on the Shenzhen and Shanghai stock exchanges. These shares are priced in Chinese Yuan (or Renminbi) and are primarily for Chinese mainland investors. Foreign investors, including investors from Hong Kong, Macau and Taiwan, are not allowed to buy A shares. *B shares*, also known as 'foreign invested shares listed in China', are the stocks of PRC incorporated companies listed on Shenzhen and Shanghai stock exchanges, but the trading currencies for B shares are different. Though B shares are denominated in Renminbi they are subscribed and traded in foreign currencies. Specifically, the B shares listed on the Shanghai Stock Exchange (SSE) are traded in US dollars and those listed on the Shenzhen stock exchange (SZSE) are traded in Hong Kong dollars. The first issue of B shares was listed on SSE in February 1992 by a company named Shanghai Vacuum Electron Devices. These shares were denominated in Renminbi (RMB) at par of RMB100 and issued to foreign investors for US$18.8 each (Note 3). B shares were originally meant for foreign investors, but later the domestic investors have been allowed to trade B shares. As indicated by the numbers in Table 1, B shares have not become popular among the investors and the number of B stocks is relatively small and has been declining over the last decade.

Table 1. A snapshot of the China's stock market (2000-2012)

Item	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
No. of listed companies (A & B shares)	1088	1160	1224	1287	1377	1381	1434	1550	1625	1718	2063	2342	na
No. of listed companies (B shares)	114	112	111	111	110	109	109	109	109	108	108	108	na
No. of foreign listed companies (H shares)	52	60	75	93	111	122	143	148	153	159	165	171	na
Total outstanding shares (bln)*	379.2	521.8	587.5	642.8	714.9	763	1492.6	2241.7	2452.3	2616.3	3318.4	3609.6	na
Free float (bln shares)*	135.4	181.3	203.7	227	257.7	291.5	344.5	1033.2	1257.9	1976	2564.2	2885	na
Total market cap (RMB, bln)*	4809.1	4352.2	3832.9	4245.8	3705.6	3243	8940.4	32714.1	12136.6	24394	26542.3	21475.9	na
Free float market cap (RMB, bln)*	1608.8	1446.3	1284.5	1317.9	1168.9	1063.1	2500.4	9306.4	4521.4	15125.9	19311	16492.1	na
Stock turnover (RMB, bln)*	6082.7	3830.5	2799	3211.5	4233.4	3166.3	9046.9	46055.6	26711.3	53598.7	54563.4	42164.7	na
SSE composite index (closing)	2073.48	1645.97	1357.65	1497.04	1266.50	1161.06	2675.47	5261.56	1820.81	3277.14	2808.08	2199.42	na
SZSE composite index (closing)	635.73	475.94	388.76	378.62	315.81	278.74	550.59	1447.02	553.30	1201.34	1290.87	886.65	na
No. of securities investment funds (SIF)	34	51	71	95	161	218	307	346	439	557	704	915	na
Turnover of SIFs (RMB, bln)*	246.6	256.2	116.7	68.3	72.9	77.3	187.9	862	583.1	1025	899.6	636.6	na

Note. a. Data sourced from various reports available on the websites of SSE (Shanghai Stock Exchange), SZSE (Shenzhen Stock Exchange) and CSRC (China Securities Regulatory Commission).

b. *Data relates to both A and B shares where 'bln' is a short expression for billion.

H shares known as 'foreign-invested shares listed overseas' are the stocks of PRC incorporated companies listed on stock exchanges outside the China mainland territory. Most of the H shares are listed on the Hong Kong stock exchange and traded in Hong Kong dollars. These shares are mainly for the foreign investors. H shares were first issued by Tsingtao Brewery Company Limited in June 1993. Since the opening up of the Chinese market to foreign investors in 1992, the Chinese authorities have implemented various schemes which allow domestic and foreign investors to cross the initial described boundaries and cross investment in different types of Chinese shares. Such changes are expected to impact the risk-return dynamics of the Chinese shares in the long run. Thus, it is important to have some idea about the relevant Chinese investment schemes described as follows:

2.1.1 Opening of B Shares to Domestic Investors

Initially the B shares market was intended to attract foreign capital. However, with the availability of alternatives such as H-shares and red-chips, the significance of B shares declined. Thus, with a view to attract foreign currency capital from domestic investors, the Chinese authorities opened the B shares market to domestic investors in February 2001. It is worth noting that domestic investors need lawful funds of foreign currency for investment in B shares.

2.1.2 Qualified Foreign Institutional Investors (QFIIs) Scheme

Foreign investment in A shares was allowed in September 2006 through QFIIs scheme. For securing a QFII licence, an applicant needs to have good credit standing, sound financial condition and a minimum size of assets as required by the CSRC. At the end of 2011, there were 135 QFIIs subjected to a total investment quota of US$ 21.64 billion. The total holdings of QFIIs accounted for 1.07% of the combined free float capitalisation of A shares. Further details about QFIIs and their operational aspects are available in CSRC Decree No. 36 (Note 4).

2.1.3 Qualified Domestic Institutional Investors (QDIIs) Scheme

A QDII refers to a financial institution approved by the Chinese regulatory agencies and having excellent investment capabilities. The QDII scheme was launched in August 2006 as a transitional arrangement to enable overseas investment by domestic firms. QDIIs can raise funds in China for investment in overseas securities portfolios. Related administration measures were approved by the CSRC on April 30, 2007, and became effective from July 5, 2007 (CSRC Decree No. 46). As at the end of 2011, there were 42 QDIIs and 59 fund products approved for QDII investment (CSRC annual report, 2011).

2.2 Related Literature

Various studies have highlighted divergent characteristics of different types of Chinese shares. For example, in an earlier Chinese market study, Bailey (1994) indicates the Chinese B shares to be trading at a discount relative to A shares and argues that the existence of discounts on B shares represent a phenomenon inconsistent with the premiums observed in other Asian markets. Sun and Tong (2000) also report the B shares being priced at a discount relative to A shares and their evidence being contrary to what has been observed in other markets with similar segmented structure. The 2001 reform helped eliminate restrictions on B share ownership. Before the reform, B shares had been owned entirely by foreign accounts. The reform led to an inflow of domestic capital (in US$ or HK$) into the B-shares and H-shares markets respectively.

The type of investor behavior may be due to the different characteristics of A, B and H-share markets such as the dominance of domestic individual investors in the A share market and the dominance of foreign institutional investors in the B and H-share market. Yeh et al. (2002) argue that where firms list separate shares for trading by domestic and foreign investors (e.g., A and B shares in China), the prices of the shares traded by foreign investors tends to be higher, but in China, the reverse tends to be true. In a study based on Chinese companies that issued both A and H shares, Wang and Jiang (2004) find that the A share and H share returns have different relations to their domestic markets (Shanghai/Shenzhen and Hong Kong respectively) as well as foreign markets. Further, they show that H shares trade at a significant discount relative to A shares. Li et al. (2006) explore the price discounts on H shares relative to A shares and suggest that the price differentials in the Chinese dual-listed A and H shares are mainly attributed to the deviation in the systemic risk premiums of their local markets. Further, they argue that the exchange rate change between the Hong Kong dollar and the Chinese Yuan does not have any significant effects on the price discounts of H shares.

The 2005-2006 reform undertaken by the Chinese government aimed at making the nontradable shares tradable. The reform helped remove significant market friction, leading to better incentive alignment between controlling and minority shareholders (e.g., Firth, Lin, & Zou, 2010; Li, Wang, Cheung, & Jiang, 2011; Chen, Jin, & Yuan, 2011; Beltratti, Bortolotti, & Caccavaio, 2012; Chen, Chen, Schipper, Xu, & Xue, 2012; and Hou, Kuo, & Lee, 2012). In addition, according to Green, Morris, and Tang (2010), the reform led to a positive impact on transparency. By the end of 2006, domestic investors accounted for about 88% of all B-share trading accounts (e.g., Bohl, Schuppli, & Siklos, 2010; and Chen, Jiang, Li, & Sim, 2010).

In general, studies relating to Chinese stocks appear to indicate that the A shares are being traded at premium relative to B and H shares. Most of these studies are focused on the return component and the risk part of investment decisions have not been given due consideration. However, some recent studies published in the domestic Chinese journals have attempted to address the risk aspects of the Chinese stock markets. For example, Johansson (2009) shows that both the Shanghai and Shenzhen stock markets have a low average systematic risk compared to the world market. Shum and Tang (2010) examine the risk-return characteristics of BRIC (Brazil, Russia, India and China) markets over the period January 2003 to July 2007. By using weekly stock market indices for BRIC countries, they show that China and Brazil have the largest Sharpe ratio. Further, they suggest that Chinese stock market is the only one of the BRIC markets which generates positive abnormal risk-adjusted returns. Their data set includes market indices for the Shanghai and Shenzhen stock exchanges but they do not differentiate between different Chinese share types. Overall, there appears to be no study which casts light on the risk-return dynamics of different types of Chinese shares.

3. Empirical Framework and the Data

3.1 Risk-Return Relationship

Earning a positive return is a fundamental motive behind investment decisions. A return is what one earns on an investment over some period and is usually expressed in annualised percentage terms. However, a return cannot be isolated from the risk (or uncertainty) associated with the underlying returns on the investment. Unlike returns, defining and measuring risk is a debatable issue, but for all empirical purposes (and widely used by the academic community), standard deviation of returns has been accepted as a good proxy of investment risk. As a fundamental investment rule, the greater the risk involved in an investment, the higher the return investors would require as compensation for bearing that risk. Thus, when comparing the performance of multiple investments, it is quite common to examine the returns with due consideration to the risk (standard deviation) of associated returns. Consequently, the literature has proposed various risk-return ratios which can be used for measuring and comparing performance of multiple investments. Such ratios include the Sharpe ratio, Treynor ratio, Jensen’s measure and Sortino ratio. Though none of these ratios is considered perfect, but the Sharpe ratio is the most popular in use and has been selected for this study.

3.2 The Sharpe Ratio

The idea of the Sharpe ratio was originated by the Noble laureate William F. Sharpe as a measure of risk adjusted return (Sharpe, 1966 and 1994). The Sharpe ratio can be defined using an ex-anti or ex-post measure of returns.

Considering the empirical nature of this study, the methodology in this study is focused around the ex-post the Sharpe ratio (SR) which is defined as the average excess return divided by the standard deviation of the underlying excess returns. In descriptive terms, a the Sharpe ratio represents the average amount of excess return for taking a unit of risk where risk is measured by the standard deviation of underlying excess returns. As such, the Sharpe ratio appears to be quite useful for comparing the performance of different assets. Though returns on treasury bonds are usually used as a proxy for risk-free return in reality risk-free return is more theory than a fact. As treasury bonds involve sovereign risk and yields on bonds fluctuate with market conditions, there appears to be no risk free return. Thus, following Sharpe (1994, p. 50), the SR in this study is defined as:

$$SR = \frac{\bar{D}}{\sigma_D} \tag{1}$$

where $\bar{D}$ is the average of the difference of returns $R_{i,t}$ on an index 'i' against a benchmark return (such as interest rate) $R_{b,t}$ over the period t =1,2…..T; and σ_D is the standard deviation of differential returns. Symbolically,

$$\bar{D} = \frac{1}{T}\sum_{t=1}^{T} D_t \quad \text{and} \quad \sigma_D = \left[\frac{\sum_{t=1}^{T}(D_t - \bar{D})^2}{T-1}\right]^{1/2} \quad \text{where } D_t = R_{i,t} - R_{b,t} \text{ for } t=1,\ 2\ldots\ldots T \tag{2}$$

As the study involves comparing the risk adjusted return across different data series, the Sharpe ratio can be appropriately manipulated to serve the purpose. In Sharpe's own words (Sharpe, 1994), "Properly used, it (the Sharpe ratio) can improve the process of managing investments".

3.3 The Data

For conducting an empirical analysis, the data is required for different types of Chinese share prices, benchmark interest rates for China and the US, and the exchange rate for the Chinese Yuan against the US dollar. All the data is available from the Thomson Reuters Datastream. Interestingly, Datastream has assigned a special status to the Chinese market in a sense that China is the only market in the world for which Datastream provides two sets of equity indices. One set of these equity indices relates to Chinese A shares and other set is for B and H shares (Note 5). Datastream claims that its equity indices are unique and advantageous in a sense that they represent more than 97% of the market capitalization of the liquid securities in the related market (Note 6). This study is based on Chinese A, B and H shares indices data which have been obtained from the Datastream. The interest rates for China (China interbank 3 month offered rate) and US (US treasury 3 month rate) are used as benchmark rates for the Chinese Yuan and US dollar equity returns respectively. All the data have monthly frequency and covers the period from January 1995 to June 2012.

4. Estimation of the Sharpe Ratio and Testable Hypotheses

4.1 The Sharpe Ratio–Some Explanations

As indicated by Sharpe (1994), there is some confusion relating to the definition and computation of the Sharpe ratio. Thus, estimation of the Sharpe ratio needs some issues to be clarified.

4.1.1 Return Calculation

The Sharpe ratio is dependent on the time over which the returns are calculated. Though returns for short periods can be annualized by using an appropriate multiplier they are unlikely to replace the true annual returns. Consequently, the end results are likely to have different statistical properties. For example, Lo (2002, p. 40) show that "a Sharpe ratio estimated from monthly data cannot be directly compared with one estimated from annual data". On the other side, if annual data is used for calculation of returns, this would reduce the number of observations significantly and the information content of results will be very poor. Sharpe (1994, p. 51) suggests that, "it is usually desirable to measure risks and returns using fairly short (e.g. monthly) periods. For purposes of standardization, it is then desirable to annualize the results." Considering both (Lo, 2002; Sharpe, 1994) arguments, all the returns in this study are measured over 12 month periods on a rolling basis from month to month. Rolling over monthly basis helps to generate a sufficient number of annual return observations and eliminates the possibility of any type of periodic bias in the results.

4.1.2 Time Period and Size Impact

The Sharpe ratio is time and size variant. It changes with the time and number of observations included in the calculation of the Sharpe ratio. Thus, any conclusion based on a single Sharpe ratio is likely to be unreliable. Further, if Sharpe ratios are computed using the same number of observations, they can be used for comparing the performance of different assets. This study uses a series of rolling Sharpe ratios based on 36 observations (or 36 month/3 year time frame). Of course, critic may raise questions as to why not a larger number (e.g. 60) or a shorter number (e.g. 24) of observations. While there appears to be no clear cut answer for such questions, it is assumed that 36 observations is a reasonably fair number to start with and the estimated results can be subjected to robustness checks using relatively smaller and larger number of observations.

4.1.3 Computation Confusion

There appears to be some confusion in the literature in relation to the computation of the Sharpe ratio. Sharpe (1994) argues that, "Whether measured ex-ante or ex-post, it is essential that the Sharpe ratio be computed using the mean and standard deviation of a differential return." Thus, the Sharpe ratio computations in this study are based on the differential of stock returns and relevant interest rates. As mentioned in the data section, the interest rates selected for this study are the annualized yield on 3 month China interbank loan and 3 month US Treasury bill.

4.2 Estimation of the Sharpe Ratio

Consistent with above explanation (4.1.1), monthly-rolling annual returns (or 12 month rolling returns) are computed for four scenarios, namely A shares priced in Chinese Yuan, A shares priced in US dollar, H & B shares priced in Chinese Yuan and H &B shares priced in US dollar. For a typical index i and month t, the annualized rate of return, $R_{i,t}$ is defined as:

$$R_{i,t} = \frac{P_{i,t} - P_{i,t-12}}{P_{i,t-12}} \quad (3)$$

where $P_{i,t}$ is the price (value) of index i at time t. Accordingly, there are four sets of returns based on the Chinese equity market indices for A and H&B shares. These returns are symbolically (Note 7) represented as:

$$R^{A}_{CNY}, R^{A}_{USD}, \ R^{H+B}_{CNY} \ \text{ and } \ R^{H+B}_{USD} \quad (4)$$

where 'R' stands for return, subscripts CNY and USD indicate the currency for prices of underlying stocks and superscripts A and H+B are indicative of share type. Make a note that the Datastream indices for A shares are based on share prices in Yuan and H & B share indices are based on US dollar prices. As such the Yuan /dollar exchange rate was applied to convert the returns from one currency to the other currency. Accordingly,

$$R^{A}_{USD} = (1 + R^{A}_{CNY})\,(1 + \Delta\text{CNY})$$

and,

$$R^{H+B}_{CNY} = (1 + R^{H+B}_{USD})\,(1 + \Delta\text{USD}) \text{ such that } \Delta\text{CNY} + \Delta\text{USD} + \Delta\text{CNY} \times \Delta\text{USD} = 0 \quad (5)$$

Note that here ΔCNY indicates corresponding period annual change in the exchange rate of CNY against the US dollar and vice versa ΔUSD is the annual change in the exchange rate of USD against the Chinese Yuan.

For each series of above defined monthly-rolling annual returns, the Sharpe ratios are calculated using a 36 month (3 year) rolling framework. Based on equations 1 and 2, the Sharpe ratio calculations are consistent with explanations at 4.1.2 and 4.1.3. As a result, there are four sets of monthly-rolling 3-year the Sharpe ratios for the Chinese stock market. Consistent with the return notations at point 4, the corresponding the Sharpe ratios (SR) are denoted as:

$$SR^{A}_{CNY}, SR^{A}_{USD}, \ SR^{H+B}_{CNY} \ \text{ and } \ SR^{H+B}_{USD} \quad (6)$$

The empirical distributions of these Sharpe ratio series are used for testing the four hypotheses as explained in the following section.

4.3 Testable Hypotheses

By definition, the Sharpe ratio represents a risk-adjusted measure of return. Thus, testing hypotheses based on distributions of the Sharpe ratio allows comparing the risk-return of the underlying stock price series. With a view to examining the first question from the domestic (Yuan) and foreign (US dollar) investors view point, the corresponding null and alternative hypotheses are specified as:

$$\mathrm{H1}_0:\ SR^{A}_{CNY} = SR^{H+B}_{CNY} \qquad \mathrm{H1}_1:\ SR^{A}_{CNY} \neq SR^{H+B}_{CNY}$$

$$\mathrm{H2}_0:\ SR^{A}_{USD} = SR^{H+B}_{USD} \qquad \mathrm{H2}_1:\ SR^{A}_{USD} \neq SR^{H+B}_{USD} \tag{7a}$$

Similarly, the second question can be viewed from the A shares and H&B shares perspective with the corresponding null and alternative hypotheses as:

$$\mathrm{H3}_0:\ SR^{A}_{CNY} = SR^{A}_{USD} \qquad \mathrm{H3}_1:\ SR^{A}_{CNY} \neq SR^{A}_{USD}$$

$$\mathrm{H4}_0:\ SR^{H+B}_{CNY} = SR^{H+B}_{USD} \qquad \mathrm{H4}_1:\ SR^{H+B}_{CNY} \neq SR^{H+B}_{USD} \tag{7b}$$

Results for mean and median equality tests relating the above hypotheses are available in Table 3. However, these tests have a limitation in the sense that they compare the overall distributions of the Sharpe ratios and fail to capture the chronological aspects. Thus a time series view and one to one comparison of corresponding the Sharpe ratios is provided by generating four Sharpe ratio differential (SRD) series (corresponding to four pairs of the Sharpe ratios discussed earlier) as under:

$$\mathrm{SRD1}:\ SR^{H+B}_{CNY} - SR^{A}_{CNY} \qquad \mathrm{SRD2}:\ SR^{H+B}_{USD} - SR^{A}_{USD} \tag{8a}$$

$$\mathrm{SRD3}:\ SR^{A}_{USD} - SR^{A}_{CNY} \qquad \mathrm{SRD4}:\ SR^{H+B}_{USD} - SR^{H+B}_{CNY} \tag{8b}$$

These series are examined by conducting formal tests for mean and median and results are reported in Table 4. Furthermore, graphic presentation of SRD1, SRD2, SRD3 and SRD4 (Figure 2) appear to provide interesting insights into the risk-return dynamics of A and H&B shares.

5. Discussion of Results

To begin with, let us have a look at the summary statistics of various variables used in this study (Table 2). The mean and median market returns for both A and H+B-shares measured in the US dollar are slightly higher than those of measured in the Chinese Yuan. This result appears to be the reflection of an appreciation of the Yuan against the US dollar over the study period. Relatively higher standard deviation of returns measured in the US dollar may indicate extra risk contributed by the exchange rate volatility.

Table 2. Summary statistics of selected variables used in the study

Variable	Mean	Median	Max	Min	Std. Dev.	Skewness	Kurtosis	JB test	Prob
ΔCNY	0.0170	0.0018	0.1107	-0.0025	0.0266	1.7631	5.5256	156.77	0.0000
INT_{CYN}	0.0379	0.0320	0.1066	0.0134	0.0161	1.7762	8.0672	319.14	0.0000
INT_{USD}	0.0287	0.0293	0.0636	0.0001	0.0214	-0.0380	1.3885	21.69	0.0000
R^{A}_{CNY}	0.1916	0.0222	2.4336	-0.6920	0.5433	1.7449	6.2726	190.74	0.0000
R^{H+B}_{CNY}	0.1787	0.1353	1.4296	-0.7767	0.4043	0.3927	3.2405	5.62	0.0601
R^{A}_{USD}	0.2124	0.0269	2.6250	-0.6640	0.5632	1.8507	6.7374	230.57	0.0000
R^{H+B}_{USD}	0.1975	0.1431	1.5651	-0.7765	0.4096	0.4149	3.3351	6.67	0.0356

Note. a. ΔCNY indicates annual change in the exchange rate of CNY (Chinese Yuan) against the US dollar.

b. INT_{CYN} and INT_{USD} are annual interest rates used as benchmark for risk free rates for China and the US respectively. These interest rates are China interbank 3 month offered rate and US treasury 3 month rate.

c. R^{A}_{CNY} stands for A shares index return when share prices are measured in the Chinese Yuan. Similarly other returns indicate the corresponding index and the underlying currency.

5.1 Comparing the Sharpe Ratio Distributions

With a view to providing maximum information about the Sharpe ratio distributions, various graphic presentations such as histogram bars and polygons, kernel density graph and simple scatter diagrams were tried, but boxplots (BP) appear to capture more information and give a better picture of the underlying distribution. A boxplot (Note 8) summarizes the distribution of selected data by displaying the centre and spread of the data using some primary elements such as mean, median, first and third quartiles, near outliers and the far outlier. The box portion presents the middle 50% of the data with the first and third quartiles as lower and upper box boundaries. The median is shown with a line through the centre of the box, while the mean is indicated by dark dot.

Figure 1 presents pairwise boxplots corresponding to hypotheses (7a &7b) specifications for the Chinese market index.

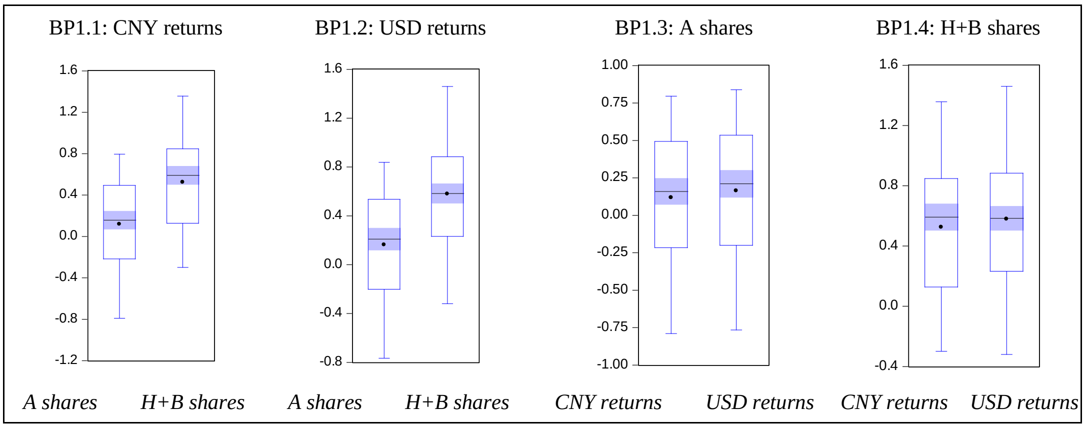

Figure 1. Boxplots (BP) of monthly-rolling 3-year the Sharpe ratios for the Chinese stock market

Notes. The box portion presents the middle half of the data. The line through the centre of the box represents the median and the dark dot is the mean. The lower and upper boundaries of the box are first and third quartiles respectively. CNY = Chinese Yuan; USD = US dollar.

A look at BP1.1 and BP1.2 sections of Figure 1 clearly reveals that H+B-shares offer a much better risk-adjusted return both from the domestic (CNY returns) and foreign (USD returns) investors view point. In fact, mean and median the Sharpe ratios for H+B-shares appear to be even above the third quartile of the Sharpe ratios for the A-shares. However, as indicated by BP1.3 and BP1.4 sections of Figure 1, there appears to be a little (if any) difference between the mean and median the Sharpe ratios from the domestic and foreign investors' perspective. In other words, the impact of exchange rate appears to be negligible. Any increased return from the appreciation of the Chinese Yuan against the US dollar appears to have been offset by an increased volatility arising from the exchange rate. Figure 1 observations are further supported by the formal test results presented in Table 3.

Table 3. Mean and median equality tests for the monthly-rolling 3-year the Sharpe ratios for the Chinese stock market

$H1_0$: $SR^{A}_{CNY} = SR^{H+B}_{CNY}$			$H2_0$: $SR^{A}_{USD} = SR^{H+B}_{USD}$			$H3_0$: $SR^{A}_{CNY} = SR^{A}_{USD}$			$H4_0$: $SR^{H+B}_{CNY} = SR^{H+B}_{USD}$		
	mean	*median*		*mean*	*median*		*mean*	*median*		*mean*	*median*
SR^{A}_{CNY}	0.1200	0.1719	SR^{A}_{USD}	0.1628	0.2133	SR^{A}_{CNY}	0.1200	0.1719	SR^{H+B}_{CNY}	0.5288	0.5997
SR^{H+B}_{CNY}	0.5288	0.5997	SR^{H+B}_{USD}	0.5815	0.6019	SR^{A}_{USD}	0.1628	0.2133	SR^{H+B}_{USD}	0.5815	0.6019
test-stat	67.84	18.66	*test-stat*	71.48	37.12	*test-stat*	0.8284	0.3067	*test-stat*	1.0273	0.0123
p-value	0.0000	0.0000	*p-value*	0.0000	0.0000	*p-value*	0.3634	0.5797	*p-value*	0.3116	0.9118

Note. Mean and median equality tests in this table are based on 163 observations of monthly-rolling the Sharpe ratios.

SR stands for the Sharpe ratio, subscripts CNY and USD indicate the currency in which stock returns are measured; superscripts A and H&B are indicator of the share type.

Mean and median values (Table 3) corresponding to hypotheses H1 & H2 (specified at 7a) are hugely different and the p-values for all the tests are nearly zero. Thus the nulls of equality of the mean and median are strongly rejected. In case of hypotheses H1 & H2, the mean and median Sharpe ratios for the H+B-shares are about three times higher than that of the A-shares. However, test results for the hypotheses H3 & H4 (specified at 7b) do not support the rejection of equality of the mean and median even at the 10% level.

5.2 One to One and Timeline Comparison of the Sharpe Ratios

As mentioned earlier, the tests focused on the Sharpe ratio distributions cannot reveal the ‘timeline’ aspects of the risk-return characteristics of the Chinese stocks. Thus examining the Sharpe ratio differential (SRD) series is important. Formal hypotheses tests (mean =0, median = 0; Table 4) for SRD series indicate that the mean and median for all the four SRD series are statistically significantly different from zero and all are positive. These results (relating SRD1 and SRD2) suggest that during the study period, on average, risk-adjusted return from H+B-shares exceeded that of A-shares both in terms of domestic and foreign currencies. On the other side, results for SRD3 and SRD4 indicate that (irrespective of share type) on average foreign (US dollar) investors had some relative advantage over domestic investors due to exchange rate changes. Furthermore, the mean and median values in Table 4 clearly indicate that exchange rate advantage for foreign investors is quite small as compared to advantage from investing in H and B-shares relative to investing in A-shares.

Table 4. An analysis of the Sharpe ratio differentials (SDR) series

SRD series	***SRD1***		***SRD2***		***SRD3***		***SRD4***	
Test of Hypothesis: Mean = 0.0000								
Sample Mean	0.4087		0.4188		0.0427		0.0528	
Sample Std. Deviation	0.7012		0.6816		0.0678		0.0643	
Test Method	*Value*	*Prob*	*Value*	*Prob*	*Value*	*Prob*	*Value*	*Prob*
t-statistic	7.4416	0.0000	7.8441	0.0000	8.0494	0.0000	10.4749	0.0000
Test of Hypothesis: Median = 0.0000								
Sample Median	0.2968		0.3597		0.0547		0.0413	
Test Method	*Value*	*Prob*	*Value*	*Prob*	*Value*	*Prob*	*Value*	*Prob*
Sign (exact binomial)	114	0.0000	118	0.0000	112	0.0000	123	0.0000
Sign (normal approximation)	5.0129	0.0000	5.6395	0.0000	4.6996	0.0000	6.4227	0.0000
Wilcoxon signed rank	6.3421	0.0000	6.7547	0.0000	7.0662	0.0000	8.1846	0.0000
van der Waerden (normal scores)	6.5107	0.0000	6.8401	0.0000	7.1902	0.0000	8.0606	0.0000
Median Test Summary								
Category	Count	Mean Rank	Count	Mean Rank	Count	Mean Rank	Count	Mean Rank
Obs > 0.0000	114	92.20	118	91.19	112	97.75	123	94.50
Obs < 0.0000	49	58.27	45	57.91	51	47.41	40	43.58
Obs = 0.0000	0		0		0		0	
Total Observations	163		163		163		163	

Note. SDR series are defined as: *SRD1* = $SR_{CNY}^{H+B} - SR_{CNY}^{A}$; *SRD2* = $SR_{USD}^{H+B} - SR_{USD}^{A}$; *SRD3* = $SR_{USD}^{A} - SR_{CNY}^{A}$; *and SRD4* = $SR_{USD}^{H+B} - SR_{CNY}^{H+B}$

However, the summary of median tests (Table 4) and graphs of SRD series (Figure 2) appears to suggest that generalisation of above results need some caution. The median test summary indicates that 25% to 31% of the 163 the Sharpe ratio values violated the above conclusions. In other words, there is at least 25% probability that the risk adjusted performance of A shares may be better than the H & B shares. Interestingly, during the initial periods (as indicated by sections of graphs below the dotted lines, Figure 2) A shares performed better than H & B shares and exchange rate favored the domestic investors. This finding may suggest that the introduction of different class of shares for foreign investors by the Chinese authorities may indirectly be a strategy to provide protection to the domestic investors during the initial stage of stock market development in China. Moreover, this type of protection may be helpful in generating positive investor sentiment in the local population.

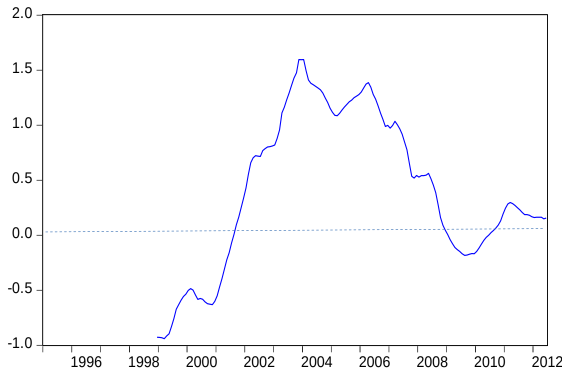

Figure 2.1. Graph of SRD1= SR^{H+B}_{CNY} - SR^{A}_{CNY}

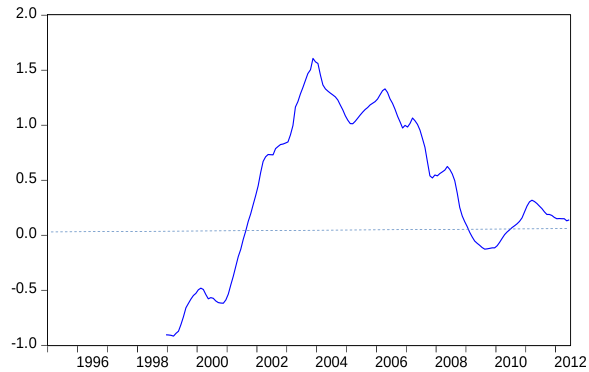

Figure 2.2. Graph of SRD2 = SR^{H+B}_{USD} - SR^{A}_{USD}

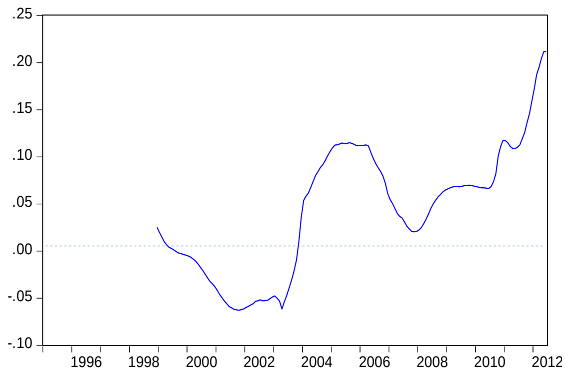

Figure 2.3. Graph of SRD3 = SR^{A}_{USD} - SR^{A}_{CNY}

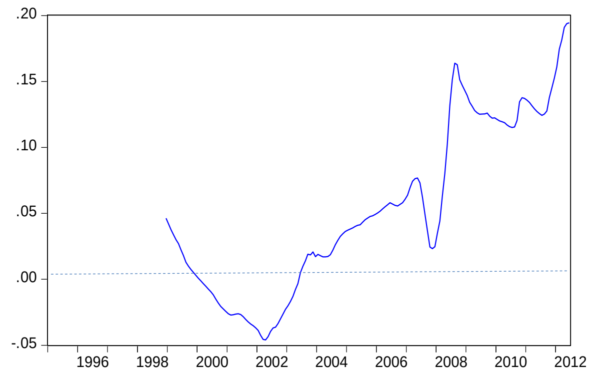

Figure 2.4. Graph of SRD4 = SR^{H+B}_{USD} - SR^{H+B}_{CNY}

Figure 2. A timeline view of the Sharpe ratio differentials for the Chinese market

Generally, an initial success in the stock markets is likely to make the investors more investment enthusiastic and risk taker. Over time this can result in over shooting of stock prices translating into lower risk adjusted returns. Thus, it is not surprising that the domestic Chinese investors may have pushed the prices of A shares beyond equilibrium level against the H & B shares. Perhaps the reversal trend in SRD1 and SRD2 graphs (Figure 2.1 and Figure 2.2) during the second half of study period may be a reflection of policy measures such as opening of B shares to domestic investors, QFIIs and QDIIs schemes enabling foreign and domestic financial institutions to cross each other's investment territories. The graphic fluctuations (graphs of SRD1 and SRD2) above and below the dotted line during the later periods of the study appears to indicate that the gap between the performances of A, and H & B shares is narrowing and may be searching for equilibrium. As regarding the exchange rate impact, it appears to offer some incentive to foreign investors for investing in China.

5.3 Robustness of Results

As indicated earlier, the Sharpe ratio has a drawback that its value varies with the number of return observations included in the calculation. Presumably, a change in the number of return observations can impact on the Sharpe ratio values, but it does not mean that the comparative characteristics of the Sharpe ratio distributions will change. As the Sharpe ratios used in this study are based on 36 return observations, the impact of 24 and 60 return observations on the results were tested. While the values of the Sharpe ratios change with the number of observations, but they do not change the findings stated in previous sections. Thus, the findings of this study appear to be independent of the number of return observations used in the calculation of the Sharpe ratios.

6. Summary and Conclusions

The Chinese stock market has many special features compared to other stock markets around the world. For example, Chinese stocks are divided into different classes like A shares, B shares and H shares and they trade in different currencies. Moreover, there are various types of restrictions which apply to trading of shares by the Chinese and foreign investors. In general, A shares are priced in the Chinese Yuan and trade in the domestic environment. On the other hand, H and B shares (grouped as H&B shares) are mostly dominated by H shares as explained in footnote (6) are priced in foreign currencies and aimed at sourcing foreign capital.

Our study examines the risk-return characteristics of A shares (domestic perspective) versus H&B shares (foreign perspective). Our findings suggest that on average, H&B shares index generated a better risk-adjusted return in comparison to A shares over the study period (1995-2012) irrespective of whether the returns were measured in the Chinese Yuan (domestic perspective) or in the US dollar (foreign perspective). Further, our results based on Sharpe ratios indicate that the relative advantage from investing in H&B shares index may be nearing the end. This finding may be attributed to the scheme which allowed domestic and foreign investors to cross each other's territories specified when the Chinese market was originally opened up to foreign investors. Second, the evidence suggests there is some exchange rate advantage for foreign investors, even though it is negligible. This finding may indicate that any marginal benefit generated by a slight (average annual) appreciation of the Yuan against the dollar is offset by an increase in the volatility of returns measured in the US dollar.

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Notes

Note 1. Chinese stocks indicate shares issued by the companies incorporated/domiciled in the People's Republic of China. These companies do not include the companies incorporated in Hong Kong and other administrative territories outside the mainland China.

Note 2. More features of A-, B- and H-shares are discussed under section 2.1 (An overview of the Chinese market).

Note 3. CSRC publication: China Capital Markets Development Report–2008.

Note 4. Available at CSRC website: www.csrc.gov.cn/pub/csrc_en/ (accessed December 2012)

Note 5. As explained in the Thomson Reuters (2012) Datastream Global Equity Indices user guide (Issue 5, page 34), the China A index is comprised of class A-shares of mainland Chinese companies traded on the Shanghai and Shenzen exchanges and which are investable only by Chinese nationals. The China (H&B) index is comprised of class H shares of mainland Chinese companies traded on the Hong Kong exchange and which are investable by non-nationals and class B-shares traded in China by non-nationals. Many major Chinese companies issue several classes of shares and therefore have constituents in both indices.

Note 6. As on 10 July 2012 (date of data download), the China A index represented 400 companies. The H&B index represented 50 companies containing 47 H shares and 3 B shares. As such H&B is dominated by H shares index.

Note 7. As in equation 3, subscripts '$_{i,t}$' can be added to the symbols (point 4) to represent index i and period t, but I feel it will overcrowd the symbols without adding any value.

Note 8. See more details in Eviews 7 user's guide, pp. 509-610.

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Collective Gratitude: Positive Organizational Scholarship Perspective

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Abstract

This research examines collective gratitude, and makes three contributions to management literature. The first contribution is theoretical. The concept of gratitude is a vital emotion or a virtue for daily life in organizations. However, the collective effect of gratitude among employees in work place is interestingly missing in the organizational behavior literature. The second contribution is that we examine the collective gratitude in aspect of positive organizational scholarship. In this conceptual article we propose that contextual performance, team learning and high quality connection is enhanced by cultivating collective gratitude. The third contribution is of conceptual nature: provide a novel framework for future research.

Keywords: collective emotions, gratitude, high quality connections, positive organizational scholarship

1. Introduction

In recent years academic publications and popular press have given increasing attention to positive psychology. Gable and Haidt (2005, p. 104) defines positive psychology as "the study of the conditions and processes that contribute to the flourishing or optimal functioning of people, groups and institutions". Positive psychology focuses on strengthing and building the best and repairing the worst problems in life (Cameron et al., 2003) as well build positive qualities. It opens the way for flourishing and prospering to individuals, organizations and communities (Luthans & Jensen, 2002). Positive psychology has three pillars; namely, positive subjective experiences, positive individual traits and positive institutions and organizations (Fineman, 2006). Positive experiences refer to past, present and future feelings; such as happiness, pleasure, joy, fulfillment and hope. Positive individual traits show the good characters such as wisdom, self esteem and courage. Lastly positive institutions or organizations where allows to enable positive experiences and traits in such as families, schools, business, communities and societies. After introducing positive psychology in 1998 by Seligman, much research has pointed to the importance of positive psychology, and is receiving broad attention in a variety of disciplines such as education, public health, human services, health care, political science, neuroscience, economics, leadership, management and the organizational sciences (Donaldson & Ko, 2010).

In organizational behavior and theory; there have been two recent movements or fields which have built on positive psychology; positive organizational behavior (POB) and positive organizational scholarship (POS). Both of these fields share the common root of positive psychology (Donaldson & Ko, 2010) and have attracted considerable attention in organizational studies. Although in the literature POB and POS are used interchangeably, they have distinct meanings and characteristics (Donaldson & Ko, 2010). Firstly POB is concerned with temporary or state-like characteristics whereas; POS is concerned with stable or trait-like qualities (Wright & Quick, 2009). While POB refers to "the study and application of positively oriented human resource strengths and psychology capacities that can be measured, developed and effectively managed for performance improvement in today's work place (Luthans, 2002, p. 59); POS is "concerned primarily with the study of especially positive outcomes, processes, and attributes of organizations and their members" (Cameron et al., 2003, p. 4). Secondly, POB emphasizes the criterion of being related to performance, POS highlights positive constructs such as compassion, gratitude, virtue for flourishing today's organizations. Lastly, the difference among POS and POB exists in the level of analysis. While POB emphasizes micro level of analyses of organizations (individuals); POS focuses on macro level of analyses of organizations (organization).

POS can be accepted as the organizational equivalent of positive psychology (Cameron et al., 2003) and focuses on macro levels of analysis in organizations. In the concept of POS, "positive" refers to an affirmative side in organizations; "organizational" refers to the process and dynamics in and through organizations, lastly "scholarship" refers to empirically research and theoretically scientific qualitative and quantitative method side which is cornerstone of POS (Caza & Caza, 2008). POS provides a positive lens for seeing, analyzing and understanding organizations. Several positive scholars focus on the possibilities for the best that organizations can become rather than identifying and overcoming problems (Roberts, 2006).

In their major study Cameron et al. (2004) point out that POS is an umbrella of diverse set of theories and topics which indicate affirmative, uplifting and elevating process and outcomes. Positive concepts such as virtues, character strength, authentic leadership, resilience, transcendence, empowerment, appreciative inquiry, energy, meaningfulness and gratitude take part in the positive umbrella. After the positive concepts were first introduced, they have received considerable interest in organizational studies through the constructs such as optimism, which is linked with job related outcomes (Kluemper et al., 2009), happiness which is associated with affective commitment (Rego et al., 2011) and organizational citizenship behavior (Rego et al., 2010) and virtuous acts such as optimism, trust, compassion, trust, integrity forgiveness which are linked with perceived organizational performance (Cameron et al., 2004).

The emergence of positive perspective in organizations (i.e. positive organizational scholarship) has brought new attention to gratitude. Gratitude is one of the important components of POS umbrella and provides to flourish and prospers organization members in extraordinary ways. Following Emmons's recommendations (2003) this study responds to this call and investigates gratitude and offer insights into how gratitude at work contribute to a deeper understanding of POS. This study makes important contributions to positive organizational scholarship. First, the study gives attention to one of the discrete emotion which is listed by Lazarus and Cohen's 15 discrete emotions for understanding the role of emotions in particular organizational context and investigating the outcomes which gratitude produce at work. Second, the study provides collective gratitude concept. To our knowledge, no research has explored the collective gratitude as an emotional state in organizational functioning. Lastly, positive organizational scholars have called more research investigating gratitude in work (Emmons, 2003; Cameron et al., 2004). This research answers this call and investigates collective gratitude in organizational context.

The purpose of this conceptual paper is to emphasize the importance of positive emotion–gratitude- at work. We develop logical and complete arguments and propose new relationships among constructs rather than testing them empirically (Gilson & Goldberg, 2015). We review theoretical and empirical evidence on the unique characteristics of gratitude from general positive organizational scholarship perspective, linking this evidence to the macro organizational context and propose the consequences of collective gratitude in the organizations. We organize this article around four sections. In the first section, literature review is provided. We define gratitude and collective gratitude and specifically review prior work on gratitude. In the second section we discuss the consequences of collective gratitude. As a conceptual paper we offer previously untested relationships among variables. Finally, the last section provides discussion and guidelines for future researches.

2. Literature Review

2.1 Gratitude: An Overview

In the Oxford English Dictionary gratitude is defined as "the quality or condition of being thankful; the appreciation of an inclination to return kindness". According to Oxford English Dictionary gratitude comes from the Latin word gratia, meaning grace, graciousness, gratefulness and gratia implies "kindness, generousness, gifts and the beauty of giving and receiving". Gratitude refers felt of sense of wonder, thankfulness and appreciation for life (Emmons, 2003). Accordingly, gratitude have three components; a benefactor, benefice and a beneficiary. Gratitude occurs when beneficiary realize the value of gift (benefice) and the intention of the benefactor. Benefits can be tangible or intangible goods, psychological or emotional nature (McCullough et al., 2001). Emmons et al. (2003) state gratitude can be both personal and transpersonal. While personal gratitude refers to thankfulness toward a specific person for example, family, friend, colleagues or boss, transpersonal gratitude refers to thankfulness to God, nature or cosmos.

Gratitude has very long intellectual and moral histories hence has been defined in many ways by philosophers and psychologists. In order to identify the previous literature on the gratitude we carried out a literature review (see Table 1). For example, Kant defines gratitude as (1797) "honoring a person because of kindness he has done us" (Emmons, 2003; Kant, 1797, p. 5). Brown (1820) defines gratitude as "that delightful emotion of love to him who has conferred a kindness he has done us" (Emmons, 2003; Brown, 1820, p. 5).

According to moral philosophers gratitude is accepted the parent of all others' virtues. Virtue defined as a character that allows a person to think and to act for benefit him/herself and society (Chun, 2005; Shryack et al., 2010). Park and Peterson (2003) argue that gratitude is in VIA (virtue in action) classification and classified in the virtues of transcendence, spirituality, appreciation of beauty, hope and humor that are comprised of strengths that provide meaning for the individual and provide the link with the universe. In accordance with this perspective gratitude is defined as “being aware of and thankful for the good things that happen” (Park & Peterson, 2003, p. 36).

Additionally gratitude is a universally esteemed virtue in world religions, including Judaism, Christianity and Islam. Judaism highlights the importance of thanking God since ancient Israel. In a similar vein, Christianity obliges Christians to thank to the source of their lives. Moreover individuals tend to show their appreciation in different context. For example in United States Thanksgiving day is celebrated for showing gratefulness. In Islam, in the Koran, the necessity and powerless of gratitude and thankfulness to God is emphasized.

According to Fredrickson (2004) and Smith and Ellsworth (1985) gratitude is conceptualized as a temporary emotional state. Gratitude is classified as positive emotion, moral emotion, emphatic emotion and social emotion. Since gratitude has a positive valence (Emmons et al., 2003), it can be classified in positive emotions like, joy, interest, contentment, love and pride. However gratitude has a unique place in these positive emotions. McCullough et al. (2002) remark the uniqueness of gratitude in their study through experimental studies. The results of the study show that gratitude is related but distinct from other positive emotions through its unique functions such as prosocial behavior and altruism. Moreover, McCullough et al. (2001) state that gratitude has three moral functions namely; moral barometer function, moral motive function and moral reinforcement function. Moral barometer function indicates the readout of beneficiary in the case of receiving intentional benefit from benefactor. Moral motive function points out extension of reciprocity and how people respond benefactors. For example grateful individuals search to repay kindness in many ways. Lastly, moral reinforcement function highlights how gratitude encourages to acts prosocial behavior among individuals in the future.

Lazarus and Lazarus (1994) state that gratitude is an emphatic (other oriented) emotion. In a similar vein, Grant and Wrzesniewski (2010) argue anticipated gratitude with regard to other-oriented emotion. Other-oriented indicates concern for the thoughts of other people. For example, anticipated gratitude shows expectation others for their contributions.

As a social emotion gratitude is defined as one of the primary motivators of benevolent behavior toward a benefactor by Adam Smith (1976) (Emmons, 2003). According to Smith, gratitude is the sentiment which most immediately and directly prompts individuals to reward. In other words, if an individual have recognized or appreciated the gift or any benevolent behavior from benefactor, he/she wants to search new ways to respond the benevolence.

While gratitude is investigated as an emotion the distinction among state and trait gratitude is crucial. Gratitude is conceptualized both state and trait in the literature (Watkins et al., 2009). State gratitude is related to recognition of the benefit. Emmons (2003) and McCulluogh et al. (2001) suggested and empirically showed that individuals feel positive emotional reaction when they gain a benefit from benefactor or appreciation of good things enhances state gratitude (Watkins et al., 2009). While state gratitude captures the gratitude that may change based on contextual factors, trait gratitude symbolize generally experienced gratitude. Trait gratitude represents dispositional tendency of positive things in life. Fitzgerald (1998) explained trait gratitude via three components; namely; (i) a warm sense of appreciation for somebody or something, (ii) a sense of goodwill toward that person or thing, (iii) a disposition to act that flows from appreciation and goodwill. With respect to trait gratitude, Emmons (2003) argues that trait gratitude have four facets. The first facet is intensity and refers to one’s strong grateful disposition. The second facet is frequency and indicates to one’s gratefulness per time. The third facet is span and implies one’s grateful circumstances in their life for example health, family, etc… The last facet is density and shows the number of grateful things in life i.e. one thing or a list of grateful things.

Further, according to Raggio et al. (2014) gratitude can be investigated via three major categories of contributors “cognitive, emotional and behavioral”. Cognitive component showcase mental process in perceiving and recognition of benefit. Emotional component points out appreciation of benefit. Finally behavioral component, which demonstrates observable elements of gratitude, indicates acknowledgment of benefit.

2.2 Conceptualizing of Collective Gratitude

In daily life the imperative role of gratitude to people is shown by researches (Watkins et al., 2003). According to a research, which was applied to American and German adults, gratitude is a useful and constructive emotion. Furthermore, 10% and 30% of individuals felt the emotion of gratitude regularly and often (McCullough et al., 2001). As the organizations are composed of people, it is expected that gratitude will be important for organizations too. Indeed gratitude exists in the work environment and highly important for workplace behavior. Although gratitude is conceptualized and defined as a moral virtue, an attitude, an emotion, a habit, a personality trait and a coping response (Lambert et al., 2009) at individual level, it remains incapable to explain gratitude as an organizational phenomenon. As shown in Table 1, each of the studies investigates consequences of gratitude and suggests implications for future empirical research. Further, there are now a limited number of studies in diverse areas of management of gratitude and collective gratitude.

Furthermore, in the literature review we discover that positive emotions in organizations frequently studied solely an individual-level phenomenon. However, workplaces are the places where individuals face to homogenous situational factors that individuals reacts collective response tendencies and shared interpretations (Cole et al., 2012).

For the reasons that inadequateness, we follow Bandura (1997) and Walumbwa et al. (2009) and transitioned personal gratitude to collective gratitude. From this perspective we defined collective gratitude the "group's shared positive emotional state recognizing and being thankful for the good things happen". To identify collective gratitude concept we use two theoretical perspectives including affective events theory, intergroup emotion theory (Muller et al., 2014; Akgün et al., 2015). Affective events theory shows that the variation of the features and perceptions of affective events (Weiss & Cropanzona, 1996) and intergroup emotion theory reflects the spread of emotions through interactions among organizational members experiencing (Barsade, 2002). Collective gratitude is likely to be important for helping groups to recognize and appreciate organizational benefits. Indeed, group-level gratitude may often be more effective than individual-feelings of gratitude. According to Fredrickson (2001) broad and build theory collective gratitude produces function at higher levels beside, individuals function at higher levels.

3. Consequences of Collective Gratitude

Gratitude seems necessity for today's extremely changing employment conditions. Today's employees are more mobile, more autonomous and less dependent on their organizations than ever before (Grant et al., 2008). In this sense, collective gratitude can be a key element in the organizations to procure positive organizational outcomes.

Gratitude can help eliminating the toxic workplace emotions, attitudes and negative emotions such as envy, anger and greed in today's highly competitive work environment. Envy originates from ingratitude and research in the envy literature has found that envy predicts negative outcomes, including counterproductive work behaviors (Khan et al., 2014), moral disengagement (Duffy et al., 2012) and social undermining, poor mental health and depressive tendencies (Tai et al., 2012). Contrary to envy, gratitude prompts more physical and emotional health (Emmons & Shelton, 2002). For example, Maslow emphasizes the role of experience and express gratitude for emotional health (Emmons & Shelton, 2002). As a positive emotion, gratitude has a unique capacity to down-regulate negative emotions' unhealthy results which arouse people's autonomic nervous systems, producing increases in heart rate, vasoconstriction and blood pressure (Fredrickson, 2003). Due to physical and mental health are reciprocally linked, gratitude leads to more healthy employees. According to Goetzel et al. (2001) more than fifty percent of the total costs associated with poor health. This healthy and satisfying individuals may perform positive contribution to his or her organization such as employee happiness and well being that are positively related with performance, commitment in contrast the result of envy such as absenteeism, sabotage, theft and other deviant workplace behaviors (Emmons, 2003). Additionally, gratitude not only eliminates the toxic workplace emotions, but also provides strength and harmony (Fredrickson, 2004) through binding people together in organizations. Since emotions are contagious, each person's gratitude experiences can reverberate through others and gratitude spreads through groups and then organizations. While gratitude builds bonds of harmony and community in organizations, ingratitude disrupts harmony. Building our conceptualization of collective gratitude as a positive emotion, we address the consequences of gratitude for organizations. We propose a basic model (Figure 1) to explain these positive consequences.

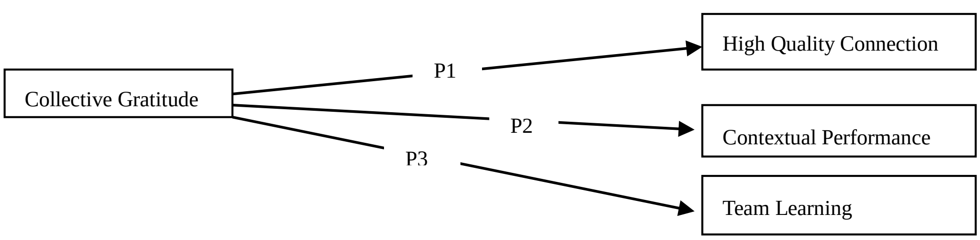

Figure 1. Proposed model

Table 1. The conceptualization of gratitude in the literature

Author	Conceptual definition of gratitude	Operational definition	Summary	A/C	Distinct Characteristics
Adam Smith (1790/1976 cf. McCullough,2001))	Gratitude is one of the most basic social emotion and is one of the primary motivators of benevolent behavior toward a benefactor.		Identified the meaning and importance of gratitude for society, and explained gratitude role for promoting social stability. According to Smith, beneficiaries feel and express gratitude toward benefactors who, intend to benefit them, succeed in benefiting them and are capable of sympathizing with the beneficiary's grateful feelings.		Social moral emotion
Simmel (1950cf. McCullough,2001)	Gratitude can be defined as the moral memory of mankind				Moral emotion
Tesser (1968)	Gratitude are a function of the recipient's perception of the intention of the benefactor, the cost to the benefactor in providing the benefit and the value of benefit		The study empirically tests the gratitude. The study test the determinants of gratitude by using qualitative method via story telling: Stories were given to groups of undergraduate males. The results imply that the mathematical model is supported and gratitude is associated with perceived altruism, cost and value.	A/intention of benefactor, cost the benefit, the value of benefit	Emphasize moral aspects of gratitude
Berger(1975)			The study explains the features of gratitude. Gratitude strengths the bonds of moral community and plays a role in interrelationships because gratitude involves the demonstration of our feelings toward another. Involving reciprocation differs gratitude from other disciplines		
Fitzgerald (1998)	Gratitude is an emotion or set of feelings. Gratitude has three components. Gratitude is a warm sense of appreciation for sb or sth, a sense of goodwill toward that individual or thing, a disposition to act which flows from appreciation and goodwill.		This study classifies the grateful situations via examples from the daily lives. Gratitude to those who harm you, gratitude to someone whom you benefit, unwarranted gratitude, and gratitude simply is a response to benefit or favor.		An emotion or set of feelings
McCullough et. al. (2002)	Gratitude is a felt sense of wonder, thankfulness and appreciation for benefits received. Gratitude can be given interpersonally or transpersonally	Having so much in life to be thankful for, having a long list grateful for, grateful to a wide variety of people, appreciating the people, events	This study defines the grateful disposition through four facets; gratitude intensity, gratitude density, gratitude frequency and gratitude span. The authors also investigate gratitude functions another major study (2001) and they	C/ subjective well-being, health,	Affective trait, GQ is an unidimensional scale.
Watkins et al. (2003)	Grateful affect is a feeling of thankful appreciation for favors received and trait gratitude would be the predisposition to experience this state.	Not feeling deprived in life, being appreciative of the contribution of others to their well-being, they have tendency to appreciate simple pleasures, acknowledging the importance of expressing and experiencing gratitude.	This study developed a Gratitude, Resentment and Appreciation Test (GRAT). In the GRAT, gratitude involves; appreciation of people, appreciation of life and the absence of feelings of deprivation.	C/ Happiness	Trait gratitude, GRAT scale
Adler & Fagley (2005)	Gratitude is conceptualized as aspect of appreciation and refers to noticing and acknowledging a benefit that has been received a person or transperson . Noticing the sacrifices and expressing the appreciation		This study developed a scale for appreciation and gratitude is a component of appreciation with have focus, awe, ritual, present moment, self/social comparison, loss/adversity and interpersonal.	C/ well-being and life satisfaction	Positive emotional reaction. Gratitude is one dimension of The Appreciation Scale
Palmatier (2009)		Feeling grateful to benevolence from another, motives the recipient to reward the giver and compliance with any subsequent requests.	This study emphasized the role of customer gratitude in relationship marketing. Data is gathered from a laboratory experiment	C/ customer' purchase intention and seller performance	Emotional core of reciprocity
Park&Peterson (2003)	Gratitude is a transcendence virtue that forges connections to the larger universe and provide meaning. Transcendent virtues, those inner qualities that strengthen bonds and connections with entities beyond the self. Gratitude is a being aware of and thankful for the good things that happen; taking time to express thanks	Feeling and expressing the gratitude	This study classifies virtues as wisdom, courage, humanity, justice, temperance, transcendence and these six core virtues includes twenty -four positive trait.	C/Organizational Performance	Gratitude is one of the a positive trait in transcendence virtue
Froh (2011)	Gratitude is the appreciation experienced by individuals when somebody does something kind or helpful for them.		This study measures gratitude in youth through GQ6, GAC, GRAT scales that is used assessing the psychometric properties of adult gratitude.	C/ Positive affect and life satisfaction	Gratitude is a cognitively complex emotion with specific social-cognitive appraisals.
Tsang et al.(2012)	Gratitude is a positive emotional reaction to the receipt of a benefit that is perceived to have resulted from the good intentions of another		This study measures gratitude through laboratory experiment by self report and investigated the relationship between gratitude and religion.		State gratitude
Grant (2010)	Anticipated gratitude is a promotion-focused emotional state that is typically elicited when employees think about work-related success and motivates employees to take action to facilitate feelings of gratitude in others.		This study measures gratitude in terms of the prosocial motivation or the desire to benefit others.		
				C/ Performance	Other-oriented emotion

3.1 Relationship with High Quality Connection (HQC)

Organizations are composed of individuals who interact with each other's naturally. Just as daily life in work life individuals have to contact and connect each other for functional purposes (goal attainment) and satisfying basic human psychological needs (autonomy, competence and relatedness) (Fernet et al., 2010). The quality of the connection is critical at work, it is essential for organization's energy, well-being and performance (Dutton, 2003). The power of high quality connection is felt and sensed for the organizations. HQC have momentous consequences for both individuals and organizations. While HQC increases the energy, detecting errors, engaging in generalized learning behaviors (Brueller & Carmeli, 2011); corrosive connections absorb all energy at work and give back nothing (Dutton, 2003). Low quality connection damages employees' capability, knowledge, motivation, commitment, and emotional reserves (Dutton, 2003). Dutton (2003) lists benefits of HQC for individuals and organizations. For individuals HQC facilitates physical and psychological health, enable individuals to engage more fully in the tasks that compose their job, enable to learn more easily; for organizations HQC enhances the capacity to cooperate within and across units, facilitates effective coordination between interdependent parts of an organization, increase employees' attachments to their organizations, expedite organizational learning, help to transfer organizational culture and provides support to change and adapt. For this important reason, positive organizational scholars focus HQC and strive the understanding the power of HQCs to explain extraordinary experiences and performance. HQCs can be short interactions or long-term relationships. According to Stephens et al. (2012) HQC refers to short-term, dyadic positive interactions at work. HQCs are ties between two or more individuals that are marked by both positive structural features (emotional carrying capacity which indicates the expression both positive and negative emotions in the connection; connect it which indicates generativity and openness to new ideas and influences, and help to change behaviors that destroy generative process; and senility which indicates connection capability for withstanding strain in a variety of circumstances (Raggins & Dutton, 2007) and positive subjective experiences (vitality, mutuality and positive regard) (Brueller & Carmeli, 2011).

Furthermore, there are three sets of mechanism which use for explaining high-quality connections; namely are, cognitive, emotional and behavioral (Stephens et al., 2012). All of the mechanism emphasized the role of gratitude. The pivotal role of gratitude in promoting positive social relationships has been suggested by philosophers and scientists for centuries. There are evidences in the literature which show the link between relationship quality and gratitude. As an emotion gratitude facilitates and strengthens relationships (Barlett et al., 2012). In the cognitive mechanism perspective taking dimension foster interpersonal virtues, such as gratitude (Williams, 2012). Perspective taking enables employees to understand the intentions of their benefactor and recognize the value of the gift from the benefactors' point of view (Williams, 2012). In the emotional mechanism perspective positive emotions dimension is important for building HQCs. Positive emotions-especially gratitude-is relevant for building HQCs. Gratitude experiences lead to greater connections over time (Stephens et al., 2012). And lastly, behavioral mechanism's dimensions respectful engagement and task enabling facilitate the building of HQCs with gratitude. The link between respectful engagement, task enabling and gratitude increases connection quality (Stephens et al., 2012).

Proposition 1: A positive relationship exists between collective gratitude and high quality connection.

3.2 Relationship with Contextual Performance

We also argue that collective gratitude promotes helping behaviors, extra-role behavior (i.e. contextual performance) by advancing helping and compassionate behaviors in organizations. Contextual performance is different from task performance. While task performance focuses on performing job requirements, contextual performance indicates volunteering to perform task activities beyond formally part of the job for example helping and cooperating with others to accomplish organizational goals. The term contextual performance has attracted many researchers and tackles social, psychological and organizational contexts (Borman & Motowidlo, 1997). However, scholars emphasize the role of individual differences, attitudinal variables and leadership factors (Podsakoff et al., 2014) give less attention to the role of collective emotions.

Collective gratitude enhances the positive consequences of contextual performance by emphasizing the importance of reciprocity (Algoe et al., 2008). For example giving opportunity for promotion or extra reward can build gratitude and facilitate extra-role performance. When organizational members show prosocial behaviors especially toward helpers who have provide benefit them previously, gratitude experiences have aroused. In addition, collective gratitude enhances to develop a shared understanding and recognizing benefit and means to repay kindness and go beyond their core tasks.

Collective gratitude also increases contextual-performance by facilitating the team communication. Through collective gratitude cohesion and commitment increases and all cohesion and commitment promote helping others in networks (Baker, 2012). Collective gratitude prompts employees to actively engage interpersonal relationships and mutually understand each other and motives that drive contextual performance. Collective gratitude facilitates to emerge contextual performance as well enhances its continuance. Sekerka et al. (2012) indicate reciprocal nature of gratitude and feelings of give back.

Proposition 2: A positive relationship exists between collective gratitude and contextual performance.

3.3 Relationship with Team Learning

Collective gratitude through emotional contagion spreads from one employee to the next (Barsade, 2002) and contributes to the sharing of knowledge. We suggest that collective gratitude positively drives team learning through social bonds. Social bonds leverage reliable relationship (Akgun et al., 2015) and increase employee voice (Hu & Kaplan, 2014), that foster team learning (Carmeli et al., 2009). Collective gratitude also enhances team learning by leveraging team members' appreciation. When team members are promoted participative decision making or declare opinion freely will be appreciative and donate their time and knowledge for the team members. In addition, collective gratitude foster positive emotions (Emmons, 2003). Positive emotions leverage upward spiral and broadening team members thinking and action which provides transmission and integration of knowledge among team members. Moreover collective gratitude provides a cooperative culture (Hu and Kaplan, 2015) and encourages learning within and between organizations. With regard to Lazarus (1991) gratitude is an empathic emotion and leads to improve learning efforts in team working (Akgün et al., 2015).

Proposition 3: A positive relationship exists between collective gratitude and team learning.

4. Discussion

Our conceptual model of collective gratitude provides new perspectives for positive organizational scholars. We propose that collective gratitude is a state-like positive emotion characterized by thankfulness at beneficiary's benefits. By highlighting the role of collective gratitude, this study provides a framework for researchers and managers to visualize and understand the relationship between collective positive emotions and positive organizational outcomes.

4.1 Theoretical and Practical Implications

As a conceptual paper, the study address to take a problem focused approach and what's new question thoroughly (Gilson & Goldberg, 2015) and provides to link across disciplines and enable to broad insights. To address, we underscore the importance of collective gratitude in a deeply manner. We respond to a call from organizational researchers for understanding of collective emotions (Huy, 2012). The current study takes the idea further and indicates collective gratitude in organizational research perspective.

As a positive emotion gratitude underscores in marketing for example in their study Romani et al. (2013) and Raggio et al. (2014) discussed the influence of customer gratitude on social responsibility and relationship marketing in individual level, however the studies in organizational behavior and theory is nascent. Notwithstanding the possibility of employee gratitude in organizations has been theorized (Hu & Kaplan, 2015; Emmons, 2003), the present research is the first to give collective perspective to these ideas and the study leads to understanding the role of collective gratitude in organizational level. Although individual level and collective level gratitude share some similarities, they are not similar in structure. Specifically through this study we emphasized the role of affective events theory and intergroup emotion theory. Both of the theories shed light on the collective role of emotions for gaining positive outcomes.

Whereas our research focuses on psychological aspects of gratitude, we see the potential for cardiovascular work related health. Positive emotions at work can build physical health and this helps to establish organizational effectiveness. For instance, Wright and Diamond (2006) emphasized the relationship among cardiovascular and individual efficiency and organizational effectiveness.

Beside theoretical contribution our research has value for practitioners (i.e., managers, organizations and stakeholders). First, it can contribute to reduce turnover intention. Recognition of the rewards or organizational inducements fosters employees' organizational commitment. From this research management can understand the role of emotions to gain positive organizational outcomes.

Further management should consider that collective gratitude is important for building connections among employees and enhancing energy and life-depleting, vital organizations. In this respect, collective gratitude promotes meaning and calling for work.

Lastly, management should organize extra training and development programs for cultivating gratitude. This way, employees feel that the firm cares about their welfare.

4.2 Limitations and Future Research

This study proposed that collective gratitude is related to high quality connections, team learning and contextual performance. It would be useful to empirically illustrate the impact of collective gratitude on organizational outcomes. Moreover, the moderating effects of positive psychological capital (PsyCap) can be investigated the relationship among collective gratitude and contextual performance.

Furthermore, we also note that measuring the impact of collective gratitude need to be evaluated within more sophisticated research designs such as diary studies for providing deepen understanding of the antecedents and consequences of collective gratitude. For instance, an employee in a firm gain a reward is more likely to perceive gratitude than an employee in a firm with no appreciation. Likewise, the frequency of reward is likely to influence perceived gratitude.

Here, we specifically showed the consequences of collective gratitude. Future researches can investigate antecedents of collective gratitude. For instance, authentic leadership, organizational culture and organizational justice should be helpful in identifying or conceptualizing collective gratitude.

In this study, we argued positive aspects of collective gratitude, however as Lindebaum and Jordan (2012) states that positive emotions can lead to negative consequences. In this sense, the negative outcomes of collective gratitude can be investigated.

5. Conclusion

The aim of the study was to present an overview of gratitude and indicate its relevance to the realm of work and organizations. To better understand gratitude as applied at work, we presented collective conceptualization of gratitude and relationship among organizational outcomes.

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The Effects of Higher Education's Institutional Organizational Climate on Performance Satisfaction: Perceptions of University Faculty in Taiwan

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Abstract

The performance of higher education institutions in the world has become an emergent issue. Asian countries tried to offer more autonomy to universities; consequently, universities moved toward scientific management and emphasized organizational performance and efficiency. Taiwan is no exception to this trend. Thus, studying the institutional organizational climate in higher education is critical for current higher education changes in Taiwan, and it is even more important to study organizational climate's effects on universities. This research developed a questionnaire to explore Taiwanese university faculty members' perceived institutional organizational climate and their satisfaction with teaching and research in the last five years. The findings of this research implicate that gender difference is an important factor to consider when university administration wants to enhance the internal organizational climate in Taiwan. Years of employment, university history, and research field all have different effects on faculty members' perceived organizational climate aspects. Implications for policy making and future researches are discussed in this research article.

Keywords: institutional organizational climate, performance satisfaction, university faculty, Taiwan

1. Introduction

The performance of higher education institutions in the world has become an emergent issue. The world's university rankings pushed governments to emphasize their universities' outcomes and rankings (Marginson, 2006). Governments in the world link the performance of their local higher education institutions with world reputation and rankings and believe this reputation and ranking can help enhance national competitiveness by cultivating local talents and attracting international faculty and students. The idea of linking university performance and national competeveness has significantly influenced recent higher education reform and policy making. Nation-states in the Asia Pacific region are no exception to this trend (Deem, Mok, & Lucas, 2008; Shin & Harman, 2009).

Marginson (2006) further explained this phenomenon by distinguishing among competition between universities in terms of national and global spheres. At the local/national level, universities compete with each other for stronger students and research grants from local institutes or agencies. At the global level of higher education competition, a university's performance is measured by research outcomes (Marginson, 2006).

Marginson's (2006) paper reminds us that competition among universities can occur differently at national and international levels. In this context, research publication numbers are seen as one key indicator for both international and local higher education competition spheres. However, every higher education system differentiates it institutions into various types in some way. University type and differences in resources influence their capacities to compete in terms of research performance. Therefore, it is important to consider a university's resources and types when conducting higher education research and to explore the causal factors influencing different types of university research to identify the hidden inequalities and challenges of higher education institutions.

Another important point to consider in this discussion is the importance of university performance. Governments care about the output of higher education institutions, but rarely think of ways to enhance university performance; researchers generally agree that university performance significantly depends on faculty members' research and teaching. In fact, the literature on educational administration has highlighted the importance of the organizational climate and its effects on teachers' behavior (Litwin & Stringer, 1966). Relatively fewer studies explore this issue at the higher education level.

The contextual background of this research is the higher education system in Taiwan. Higher education in Taiwan has entered the phase of mass higher education conceptualized by Trow (1972). The 159 higher education institutions in Taiwan included 124 universities, 21 colleges, and 14 junior colleges in 2014 (Ministry of Education in Taiwan, 2015). Certain characteristics of higher education institutions will be included in the study design of this research to highlight distinctions between universities. These characteristics include private and national institutions, technology-focused institutions, and academic-focused institutions. During the last decade, Taiwan's government has sought to strengthen its higher education and, thus, implemented several special policies. A number of universities were selected by the Taiwanese government as research-focused universities and teaching-focused universities; therefore, this research recognizes these variables as important characteristics to consider in the research design.

The purposes of this research include the following:

1) To conceptualize the theoretical components of the organizational climate in higher education;
2) To develop a higher education organizational climate questionnaire;
3) To administer this questionnaire to 300 university faculty in Taiwan;
4) To analyze university faculty members' perceptions of the higher education organizational climate in Taiwan;
5) To explore the effects of higher education's organizational climate on faculty members' perceived satisfaction with research and teaching performance.

2. Literature Review

2.1 Organizational Climate in Higher Education

Studies of organizational behavior originate from the management field, which explores interactions between humans and the environment. For example, Owens and Valesky (2014) argued that organizational behavior originates from interactions between individual and environmental factors in the organization and can be represented by one formula: b=f(p*e). In this formula, *b* refers to human behavior, *p* refers to people in the organization, and *e* refers to environmental factors. In the context of higher education institutions, *p* can be used to refer to faculty, staff, students, and administrators; *e* to campus facilities, university regulations, teaching quality, library quality, atmosphere, building design, etc.; and *b* to performance or any behavioral perceptions of participants at universities.

Organizational climate is an important theoretical construct because it can help recognize the wellness of an organization and distinguish among types of organizations (Moran & Volkwein, 1988). To measure organizational climate in one organization, investigators have to measure organization members' perceptions. In fact, studying organizational climate is highly valuable because it significantly relates to important outcome variables (Field & Abelson, 1982). In many studies, it has been proved to positively relate to good behavior and high motivation (Litwin & Stringer, 1966).

However, in the field of higher education, researchers have pointed out that organizational culture and climate are two similar, but distinctive concepts. Peterson, Cameron, Jones, Mets, and Ettington (1986) asserted that organizational culture and organizational climate are difficult to differentiate and refer to the entire combination of experiences in higher education institutions. This research defines organizational climate in higher education from the perspectives of management theories, where organizational culture refers to an organization's behavioral regulations, hypotheses, and beliefs. The organizational climate can be defined as organizational members' perceptions of regulations, hypotheses, and beliefs within the organization. Organizational culture includes cultural characteristics that are difficult to capture whereas organization climate is a set of psychological constructs to capture these cultural characteristics. Researchers argue that organizational climate not only conceptualizes cultures, but also measures the characteristics of the total environment in the school (Owens & Valesky, 2014).

Peterson et al. (1986) asserted that organizational climate in higher education is how faculty, administrators, and students perceive environmental factors of the university or college. Astin (1968) pointed out that organizational climate can be captured from students' perspectives on university's characteristics, such as school policies, curriculum, facility, teaching content, interactions with colleagues, and other collegiate experiences. Educational Testing Service (1973) developed an Institutional Goals Inventory to measure university members' views on their institutions' organizational goals.

This research developed a questionnaire to measure university faculty's perceptions on the higher education organizational climate based on the literature reviewed herein. The aspects of the higher education organizational climate defined in this questionnaire include research resources, teaching resources, research cooperation, organizational justice, internationalization, and learning innovation.

2.2 Effects of Organizational Climate on University Faculty Performance: The Macro Perspective and Background Variable Differences

Neumann (1978) administered questionnaires to 57 departments and research institute professors in the northeastern region of the United States. This result indicated that organizational climate relates to professors' job satisfaction, but this relationship differs among the different factors within the organizational climate. The organizational goal attribute has a lower relationship with job satisfaction, while professors' perceptions of personal autonomy would have a higher correlation with their job satisfaction; this relationship is even more significant when these professors' research field is social science. Neumann's research holds its explanation power because most of its samples were professors at research-oriented universities; if these professors were working at teaching-oriented or community colleges, then the research results could be different. This research also highlighted the importance of considering higher education institutions' orientation and organizational mission in the research design.

Peterson and White (1992) administered the organizational climate for teaching and learning questionnaires to faculty members and administrators in three community colleges, three private liberal arts colleges, and four comprehensive universities. They analyzed and compared professors' and administrators' perceptions on institutional organizational culture and its impact on their work motivation. The research found that professors and administrators have very different views of a university's mission and organizational culture. Administrators viewed economic and financial feedback as an important organizational goal. This research also found that different institutions will reflect a different organizational climate and the gap between professors and administrators will differ according to different institutions.

These two studies focused on institutional differences; however, there other studies have focused on gender and social economic status differences. Bronstein and Farnsworth (1998) compared university professors' perceptions on departmental organizational climate, focusing on gender. This research was based on gender inequality theory and used one research-oriented university as the sample. Most professors at this university felt a positive organizational environment, and female professors perceived different treatment and higher feelings of threat than male faculty. Female professors also perceived inequality in their hiring and promotion process.

3. Research Method

The research design, definition of terms, and samples will be described in this section.

3.1 Research Design

The author of this research developed a questionnaire that includes three main sections to explore Taiwanese university faculty members' perceived organizational climate and their self-evaluated performance satisfaction. The questionnaire includes three sections: background variables, organizational climate aspects, and performance satisfaction. This research aimed to determine how current Taiwanese university faculty members view their university's research resources, teaching resources, research collaboration, organizational justice, internationalization, and learning innovation as well as their satisfaction with their teaching and research performance. The background variables in the questionnaire helped determine the respondent samples' background information, and the author applied *t*-test and ANOVA to examine the differences of organizational climate and performance satisfaction perceptions based on the background variables. Figure 1 depicts the conceptual diagram of the research design.

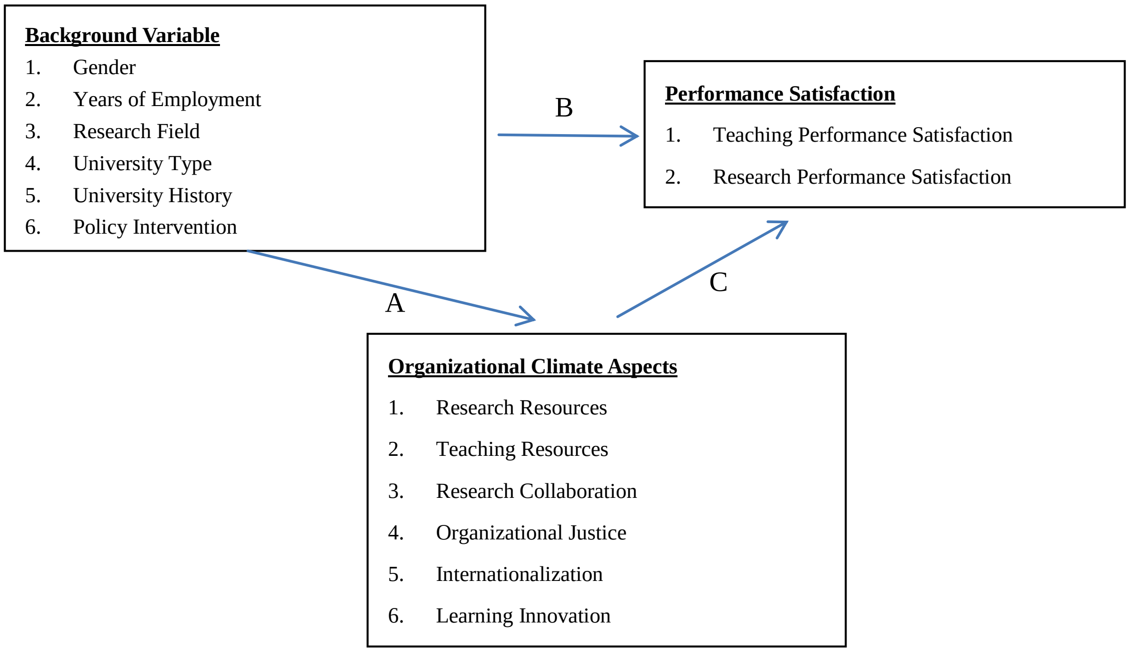

Figure 1. Conceptual framework of research design

Arrow A: Use *t*-test and ANOVA to test the differences of means of organizational climate aspects with different background variables

Arrow B: Use *t*-test and ANOVA to test the differences of means of performance satisfaction aspects with different background variables

Arrow C: Use regression analysis to test the effects of organizational climate aspects on performance satisfaction aspects.

3.2 Definition of Terms

3.2.1 Background Variables

In this research, background variables are included in the questionnaire based on literature reviews that are seen as potential influential factors of organizational climate aspects and performance satisfaction. These variables include gender, years of employment, research field, university type, university history, and policy intervention. The policy intervention variable was used to ask participants if their university received a teaching excellence fund and research excellence fund from the Taiwanese government. The teaching excellence fund is a policy first implemented by the Taiwanese government in 2005. This competition-based fund project offers awarded universities Ministry of Education (MOE) funds to help pursue teaching excellence. The research excellence fund is similarly a competition-based fund project in which the MOE helps awarded institutions pursue research excellence and international research benchmarks.

3.2.2 Institutional Organizational Climate

In this research, the institutional organizational climate, defined as university faculty's perceptions of their university's climate, were demonstrated via six aspects: research resources, teaching resources, research collaboration, organizational justice, internationalization, and learning innovation.

a. Research resources:

This aspect measures how university faculty members perceive their university's positive climate in terms of teachers' application for research funds, the hiring of research assistants, students' participation in teachers' research projects, colleagues' motivation to conduct research, and the university's internal support for scientific research.

b. Teaching resources:

This aspect measures how university faculty members perceive their university's positive climate in terms of the university's emphasis on teaching performance, the hiring of teaching assistants, application of teaching excellence funds, teaching activity participation, colleagues' motivation to refine their teaching, and learning activities being held to enhance teaching.

c. Research collaboration:

This aspect measures how university faculty members perceive their university's positive climate in terms of colleagues' cooperative motivation to work on research projects together as well as their willingness to do joint research projects, share research resources with one another, share the experience of research article publication, regularly meet together and discuss research experiences, partake in others' research works, and co-author publishing articles.

d. Organizational justice:

This aspect measures how university faculty members perceive their university's positive climate in terms of teacher salary fairness, promotion system fairness, reward system fairness, resource allocation system fairness, teaching load allocation fairness, and research performance evaluation fairness.

e. Internationalization:

This aspect measures how university faculty members perceive their university's positive climate in terms of the university's encouragement to publish international journal or book articles and participate in international conferences or seminars; the university's efforts to internationalize the administration; admit international students and hire international academic talents, and host international events; and the university's encouragement to teach in foreign languages.

f. Learning innovation:

This aspect measures how university faculty members perceive their university's positive climate in terms of teachers' willingness to learn new knowledge, try innovative teaching, strive for innovative research, use innovative teaching and research methods, and express new knowledge as well as the university's effort to creating new service modes and reward innovative actions.

The questionnaire applied a Likert scale to measure faculty members' perceived institutional organizational climate. When answering each item of the institutional organizational climate section, participants rated the item from 1 (strongly disagree) to 5 (strongly agree) based on their own experiences. A higher average score meant they had a more positive feeling about the item's description.

3.2.3 Performance Satisfaction

The performance satisfaction variable in this research is listed in the questionnaire to ask about participants' satisfaction with their teaching and research performance at the university during the preceding five years. The questionnaire applied a Likert scale to measure faculty members' perceived performance satisfaction. They rated each item from 1 (strongly disagree) to 5 (strongly agree) based on their own experiences. A higher average score meant they had a higher level of satisfaction with the item's description.

3.3 Samples

This research administered approximately 600 questionnaires to university faculty members distributing equally among national and private universities in Taiwan. In Taiwan, every city or county has at least one national and one private university; therefore, this research administered questionnaires to university faculty members employed at one national and one private university of each city or county. At each university, we administered five questionnaires to professors and five questionnaires to associate and assistant professors in different colleges or schools. Thus, the samples could reflect different research fields and different regions. Table 1 provides a frequency analysis of background variables of returned questionnaires. The total number of valid returned samples was 297. As this table demonstrates, the percentage of different background variables is equivalently distributed. The only problem is that fewer than 10 valid samples were returned from the national university of technology and private university of technology; thus, these questionnaires were not included in the ANOVA analysis when we examined the perception differences between university types.

Table 1. Frequency analysis of returned questionnaires

Total Number of Returned Valid Samples: 297			
Background Variables			
Items	Group	Number	Percentage
Gender	Male	197	66.3%
	Female	100	33.7%
Years employed at university	Less than 5 years	112	37.7%
	6 to 10 years	57	19.2%
	11 to 15 years	42	14.1%
	Over 16 years	86	29.0%
Research field	Humanities & Arts	50	16.8%
	Social Science and Management	91	30.6%
	Education	36	12.1%
	Natural and Life Science	70	23.6%
	Engineering	50	16.8%
University types	National University	192	64.6%
	National University of Technology	8	2.7%
	Private University	96	32.3%
	Private University of Technology	1	0.3%
University history	Less than 15 years	101	34%
	16 to 25 years	61	20.5%
	26 to 35 years	25	8.4%
	Over 36 years	110	37%
If serving university is awarded Building Teaching Excellence at University Fund from Ministry of Education in Taiwan	Yes	227	76.4%
	No	70	23.6%
If serving university is awarded Building World-Class University Fund from Ministry of Education in Taiwan	Yes	123	41.1%
	No	174	58.6%

4. Research Findings

Table 2 summarizes the results of the descriptive analysis of faculty members' perceived aspects of the institutional organizational climate. Faculty members perceived a higher level of research resources and internationalization but relatively lower levels of research collaboration and organizational justice, although they generally felt positively about the institutional organizational climate at Taiwanese universities.

Table 2. Mean and SD of faculty members' perceived institutional organizational climate in different aspects

Aspects	Mean	SD
Research Resources	4.0645	0.63831
Teaching Resources	3.7929	0.75016
Research Collaboration	3.4127	0.87982
Organizational Justice	3.4161	0.86562
Internationalization	4.0114	0.70368
Learning Innovation	3.7653	0.72255

Table 3 summarizes the results of the descriptive analysis of faculty members' perceived aspects of teaching and research performance satisfaction. Faculty members indicated higher satisfaction with their teaching performance, but relatively lower satisfaction with their research performance, although they generally felt satisfied with their teaching and research performance from the last five years.

Table 3. University faculty members' perceived teaching and research performance satisfaction

Items	Mean	SD
1. My satisfaction with my teaching performance in the last five years	4.037	0.6330
2. My satisfaction with my research performance in the last five years	3.586	0.9117

Table 4 summarizes the results of the *t*-test analysis of faculty members' perceived institutional organizational climate based on gender. Male faculty members perceived significantly higher climate aspects of research resources, research collaboration, organizational justice, satisfaction with teaching, and satisfaction with research. No significant gender difference was evident for teaching resources, internationalization, or learning innovation.

Table 4. T-test results of institutional organizational climate perceived by faculty members based on gender

Aspect	Gender	N	Mean	SD	T	P
Research Resources	Male	197	4.1276	.58997	2.272	.024*
	Female	100	3.9400	.71101		
Teaching Resources	Male	197	3.8519	.67946	1.769	.079
	Female	100	3.6767	.86483		
Research Collaboration	Male	197	3.5649	.82940	4.307	.000***
	Female	100	3.1129	.90312		
Organizational Justice	Male	197	3.5439	.83740	3.645	.000***
	Female	100	3.1643	.86917		
Internationalization	Male	197	4.0444	.66078	1.077	.283
	Female	100	3.9463	.78078		
Learning Innovation	Male	197	3.8223	.69958	1.919	.056
	Female	100	3.6529	.75682		
Satisfaction with Teaching	Male	197	4.096	.6110	2.286	.023*
	Female	100	3.920	.6618		
Satisfaction with Research	Male	197	3.751	.8107	4.218	.000***
	Female	100	3.260	1.0112		

Note. *p < .05; **p < .01; ***p < .001.

Table 5 summarizes the results of the *t*-test analysis comparing faculty members' perceived institutional organizational climate between faculty at national and private universities. National university faculty members had significantly higher perceptions for teaching resources and research satisfaction. No significant institutional type differences emerged for research resources, research collaboration, organizational justice, internationalization, learning innovation, or teaching satisfaction.

Table 5. T-test results of institutional organizational climate perceived by faculty members from different institutional types: national versus private universities

Aspect	Institutional Type	N	Mean	SD	T	P
Research Resources	National University	192	4.0766	.66764	.732	.465
	Private University	96	4.0179	.58783		
Teaching Resources	National University	192	3.6693	.76013	-3.943	.000***
	Private University	96	4.0295	.66842		
Research Collaboration	National University	192	3.4397	.92938	.873	.384
	Private University	96	3.3438	.77045		
Organizational Justice	National University	192	3.3765	.88441	-1.049	.295
	Private University	96	3.4896	.81704		
Internationalization	National University	192	4.0260	.71159	.574	.566
	Private University	96	3.9753	.69859		
Learning Innovation	National University	192	3.7344	.76123	-1.161	.247
	Private University	96	3.8333	.63809		
Satisfaction with Teaching	National University	192	4.052	.6286	.522	.602
	Private University	96	4.010	.6569		
Satisfaction with Research	National University	192	3.656	.8540	2.395	.017*
	Private University	96	3.385	.9986		

Note. *$p < .05$; **$p < .01$; ***$p < .001$.

Table 6 summarizes the results of the ANOVA analysis comparing faculty members' perceptions of the institutional organizational climate based on years of employment at the university. The F values show significant mean differences for research resources, organizational justice, internationalization, learning innovation, and research satisfaction. The author conducted a post-hoc comparison between groups, which found that faculty members employed fewer than 5 years perceived significantly higher research resources than those employed 6 to 10 years. Faculty members employed for more than 16 years also perceived significantly more research resources than those employed 6 to 10 years. Another finding is the difference in perception in terms of research satisfaction: Faculty members employed for more than 16 years perceived significantly higher research satisfaction than those employed fewer than 5 years or for 6 to 10 years.

Table 6. ANOVA results of institutional organizational climate perceived by faculty members based on years of employment at university

Aspect	Years of Employment	N	Mean	SD	F	Post-Hoc
Research Resources	a. Less than 5 years	112	4.1939	.52475	6.476***	a>b;
	b. 6 to 10 years	57	3.7694	.80031		d>b
	c. 11 to 15 years	42	3.9830	.59882		
	d. Over 16 years	86	4.1312	.61326		
Teaching Resources	a. Less than 5 years	112	3.8199	.68377	2.282	
	b. 6 to 10 years	57	3.5702	.92900		
	c. 11 to 15 years	42	3.8175	.65209		
	d. Over 16 years	86	3.8934	.72847		
Research Collaboration	a. Less than 5 years	112	3.5204	.85754	2.504	
	b. 6 to 10 years	57	3.1378	1.07820		
	c. 11 to 15 years	42	3.4592	.77770		
	d. Over 16 years	86	3.4319	.78123		

Organizational Justice	a. Less than 5 years	112	3.4936	.78502	3.294*	n.s.
	b. 6 to 10 years	57	3.1554	.98394		
	c. 11 to 15 years	42	3.2687	.93502		
	d. Over 16 years	86	3.5598	.81233		
International-ization	a. Less than 5 years	112	4.1250	.60474	3.426*	n.s.
	b. 6 to 10 years	57	3.8136	.84288		
	c. 11 to 15 years	42	3.8571	.68162		
	d. Over 16 years	86	4.0698	.70440		
Learning Innovation	a. Less than 5 years	112	3.8520	.68066	3.121*	n.s.
	b. 6 to 10 years	57	3.5363	.85684		
	c. 11 to 15 years	42	3.6735	.77046		
	d. Over 16 years	86	3.8488	.62187		
Satisfaction with Teaching	a. Less than 5 years	112	3.955	.5597	1.383	
	b. 6 to 10 years	57	4.035	.7551		
	c. 11 to 15 years	42	4.048	.6608		
	d. Over 16 years	86	4.140	.6167		
Satisfaction with Research	a. Less than 5 years	112	3.384	.9515	7.479***	d>a
	b. 6 to 10 years	57	3.386	1.0980		d>b
	c. 11 to 15 years	42	3.690	.7805		
	d. Over 16 years	86	3.930	.6470		

Note. *p < .05; **p < .01; ***p < .001.

Table 7 summarizes the results of the ANOVA analysis comparing faculty members' perceived institutional organizational climate based on their research fields. The F values showed significant mean differences for research resources, teaching resources, research collaboration, and research satisfaction. The author further conducted a post-hoc comparison between groups, finding that faculty members in the humanities and arts fields perceived significantly lower research collaboration than those in education, natural and life science, and engineering. Faculty members in the social sciences and management fields also perceived significantly less research collaboration than those in engineering.

Table 7. ANOVA results of institutional organizational climate perceived by faculty members based on research fields

Aspect	Research Field	N	Mean	SD	F	Post-Hoc
Research Resources	a.Humanities & Arts	50	3.9686	.75222	2.654*	n.s.
	b.Social Science and Management	91	3.9702	.63156		
	c.Education	36	4.2143	.75477		
	d.Natural and Life Science	70	4.0327	.56265		
	e.Engineering	50	4.2686	.47305		
Teaching Resources	a.Humanities & Arts	50	3.9233	.70968	2.652*	n.s.
	b.Social Science and Management	91	3.6447	.77428		
	c.Education	36	3.9722	.90633		
	d.Natural and Life Science	70	3.6929	.69310		
	e.Engineering	50	3.9433	.64207		

Research Collaboration	a.Humanities & Arts	50	2.9657	.84420	8.147***	c>a
	b.Social Science and Management	91	3.2873	.91955		d>a
	c.Education	36	3.6984	.94192		e>a, b
	d.Natural and Life Science	70	3.4531	.83617		
	e.Engineering	50	3.8257	.56799		
Organizational Justice	a.Humanities & Arts	50	3.3743	.86290	1.355	
	b.Social Science and Management	91	3.3077	.95901		
	c.Education	36	3.5675	.86290		
	d.Natural and Life Science	70	3.3694	.82065		
	e.Engineering	50	3.6114	.72788		
International-ization	a.Humanities & Arts	50	3.9425	.74711	1.714	
	b.Social Science and Management	91	3.9162	.73126		
	c.Education	36	4.2014	.78676		
	d.Natural and Life Science	70	3.9875	.63100		
	e.Engineering	50	4.1500	.61601		
Learning Innovation	a.Humanities & Arts	50	3.7514	.82688	1.193	
	b.Social Science and Management	91	3.6578	.66629		
	c.Education	36	3.8889	.88137		
	d.Natural and Life Science	70	3.7571	.69022		
	e.Engineering	50	3.8971	.61499		
Satisfaction with Teaching	a.Humanities & Arts	50	4.020	.6224	1.906	
	b.Social Science and Management	91	4.044	.6130		
	c.Education	36	4.139	.7617		
	d.Natural and Life Science	70	3.886	.6493		
	e.Engineering	50	4.180	.5226		
Satisfaction with Research	a.Humanities & Arts	50	3.540	.9941	2.916*	e>d
	b.Social Science and Management	91	3.549	.9341		
	c.Education	36	3.694	1.0642		
	d.Natural and Life Science	70	3.371	.8542		
	e.Engineering	50	3.920	.6337		

Note. *p < .05; **p < .01; ***p < .001.

Table 8 summarized the results of the ANOVA analysis comparing faculty members' perceived institutional organizational climate based on their different university history. The F values showed no significant differences for most aspects of faculty members' perceived institutional organizational climate. The only significant mean difference was for internationalization. The post-hoc analysis showed that faculty members who worked at universities with more than 36 years of history perceived significantly higher internationalization than those at universities with fewer than 15 years of history.

Table 8. ANOVA results of institutional organizational climate perceived by faculty members based on university history

Aspect	University History	N	Mean	SD	F	Post-Hoc
Research Resources	a.Less than 15 years	101	3.9519	.68699	2.125	
	b.16 to 25 years	61	4.0398	.69161		
	c.26 to 35 years	25	4.1314	.56079		
	d.Over 36 years	110	4.1662	.56335		
Teaching Resources	a.Less than 15 years	101	3.7376	.79174	.385	
	b.16 to 25 years	61	3.8634	.79087		
	c.26 to 35 years	25	3.8333	.64010		
	d.Over 36 years	110	3.7955	.71594		
Research Collaboration	a.Less than 15 years	101	3.3593	.93429	.443	
	b.16 to 25 years	61	3.4543	.89005		
	c.26 to 35 years	25	3.5714	.70349		
	d.Over 36 years	110	3.4026	.86414		
Organizational Justice	a.Less than 15 years	101	3.3380	.91042	.664	
	b.16 to 25 years	61	3.4215	.86835		
	c.26 to 35 years	25	3.5943	.79398		
	d.Over 36 years	110	3.4442	.84068		
International-ization	a.Less than 15 years	101	3.8713	.77731	2.792*	d>a
	b.16 to 25 years	61	3.9795	.66934		
	c.26 to 35 years	25	4.0700	.69417		
	d.Over 36 years	110	4.1443	.63268		
Learning Innovation	a.Less than 15 years	101	3.6846	.74678	.668	
	b.16 to 25 years	61	3.7845	.72074		
	c.26 to 35 years	25	3.8343	.63444		
	d.Over 36 years	110	3.8130	.72243		
Satisfaction with Teaching	a.Less than 15 years	101	3.970	.7135	.865	
	b.16 to 25 years	61	4.082	.5566		
	c.26 to 35 years	25	3.960	.5385		
	d.Over 36 years	110	4.091	.6140		
Satisfaction with Research	a.Less than 15 years	101	3.505	.9552	.677	
	b.16 to 25 years	61	3.705	.7820		
	c.26 to 35 years	25	3.520	1.1225		
	d.Over 36 years	110	3.609	.8892		

Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 9 summarizes the results of the *t*-test analysis of the institutional organizational climate perceived by faculty members based on whether their institutions received the Building Teaching Excellence at University Fund award. Faculty members who worked at recipient universities perceived higher teaching resources than those at non-recipient universities.

Table 9. T-test results of institutional organizational climate perceived by faculty at different institutional types: building teaching excellence at university fund

Aspect	If university has received Building Teaching Excellence at University Fund	N	Mean	SD	T	P
Research Resources	Yes	227	4.1070	.59699	1.851	.067
	No	70	3.9265	.74519		
Teaching Resources	Yes	227	3.8532	.71452	2.514	.012*
	No	70	3.5976	.83140		
Research Collaboration	Yes	227	3.4594	.84421	1.652	.100
	No	70	3.2612	.97771		
Organizational Justice	Yes	227	3.4651	.82543	1.616	.109
	No	70	3.2571	.97426		
Internationalization	Yes	227	4.0424	.67165	1.254	.213
	No	70	3.9170	.79575		
Learning Innovation	Yes	227	3.8037	.67310	1.653	.099
	No	70	3.6408	.85740		
Satisfaction with Teaching	Yes	227	4.035	.6370	-.088	.930
	No	70	4.043	.6241		
Satisfaction with Research	Yes	227	3.577	.8810	-.298	.766
	No	70	3.614	1.0114		

Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 10 summarizes the results of the *t*-test analysis of the institutional organizational climate perceived by faculty members based on whether their institutions received the Building World-Class University Fund. Faculty members who worked at recipient universities perceived significantly higher research resources, research collaboration, internationalization, learning innovation, and research satisfaction than those at non-recipient universities.

Table 10. T-test results of institutional organizational climate perceived by faculty members at different institutional types: building world-class university fund

Aspect	If university has received Building World-Class University Fund	N	Mean	SD	T	P
Research	Yes	123	4.2044	.58562	3.227	0.001**
Resources	No	174	3.9655	.65689		
Teaching	Yes	123	3.7276	.75273	-1.262	0.208
Resources	No	174	3.8391	.74706		
Research Collaboration	Yes	123	3.5610	.81639	2.463	0.014*
	No	174	3.3079	.90981		
Organizational Justice	Yes	123	3.4843	.84805	1.143	0.254
	No	174	3.3678	.87704		
Internationalization	Yes	123	4.2043	.59718	4.228	0.000***
	No	174	3.8750	.74201		
Learning Innovation	Yes	123	3.8711	.68498	2.135	0.034*
	No	174	3.6905	.74081		

Satisfaction with Teaching	Yes	123	4.098	.5925	1.388	.166
	No	174	3.994	.6584		
Satisfaction with Research	Yes	123	3.748	.8356	2.658	.008**
	No	174	3.471	.9476		

Note. **p* < .05; ***p* < .01; ****p* < .001.

Table 11 summarizes the results of the stepwise regression of predicting the dependent variable of teaching performance satisfaction. Three regression results are displayed in this table. The author entered all institutional organizational climate variables perceived by all samples into the regression model to predict their teaching performance satisfaction. In the first model, all samples were included, and research resources were the significant predictor of their teaching performance satisfaction. The second model analyzed data from samples working at universities that received Building Teaching Excellence at University Fund, and research resources were the significant predictor. For samples working at universities that received Building World-Class University Fund, internationalization was the significant predictor in the model predicting faculty members' teaching performance satisfaction.

Table 11. Stepwise regression results predicting "my satisfaction with teaching performance in the last five years"

	Entered Variable(s)	R	R^2	Adjusted R^2	F Value	Standardized B	t Value
All Universities	Research Resources	.258	.067	.063	21.047***	.258	4.588***
Recipients of Building Teaching Excellence at University Fund	Research Resources	.244	.060	.056	14.286***	.244	3.780***
Recipients of Building World-Class University Fund	Internationalization	.279	.078	.070	10.223**	.279	3.197**

Note. **p* < .05; ** *p* < .01; *** *p* < .001.

Table 12 summarizes the results of the stepwise regression for predicting research performance satisfaction. Three regression results are displayed in this table. The author entered all institutional organizational climate aspects into the regression model to predict their research performance satisfaction. In the first model, all samples were included, and organizational justice aspect was the significant predictor of their research performance satisfaction. The second model included samples working at universities that received Building Teaching Excellence at University Fund; research collaboration was the significant predictor of research performance satisfaction. For samples working at universities that received the Building World-Class University Fund, internationalization was the significant predictor predicting faculty members' research performance satisfaction.

Table 12. Stepwise regression results predicting "my satisfaction with research performance in the last five years"

	Entered Variable(s)	R	R^2	Adjusted R^2	F Value	Standardized B	t Value
All Universities	Organizational Justice	.282	.080	.076	25.497***	.282	5.049***
Recipients of Building Teaching Excellence at University Fund	Research Collaboration	.257	.066	.062	15.951***	.257	3.994***
Recipients of Building World-Class University Fund	Internationalization	.287	.082	.075	10.841**	.287	3.293**

Note. **p* < .05; ***p* < .01; ****p* < .001.

5. Conclusion

Organizational climate is an important indicator of an organization's positive development. In the past, higher education institutions in Taiwan have been highly regulated by the central government and have had less autonomy for changing their internal organizational structures; thus, organizational climate has not been an important issue. However, when globalization strongly influenced higher education in Asia, the Asian countries tried to offer more autonomy to universities; consequently, universities moved toward scientific management and emphasized organizational performance and efficiency. Taiwan is no exception to this trend. The Taiwanese government implemented several competition-based funding programs to encourage higher education institutions to become self-regulated and more competitive in the global higher education field. The relevant policies for pursuing teaching excellence and research outcomes are part of this reform. Thus, studying the institutional organizational climate in higher education is critical for current higher education changes in Taiwan, and it is even more important to study organizational climate's effects on universities.

This research developed a questionnaire to explore Taiwanese university faculty members' perceived institutional organizational climate and their satisfaction with teaching and research in the last five years. This research found that Taiwanese faculty members generally perceived a positive institutional organizational climate in all aspects as well as a relatively higher level of research resources and internationalization but relatively lower levels of research collaboration and organizational justice. Taiwanese faculty members perceive higher satisfaction with their teaching performance in the last five years but lower satisfaction with their research performance. Male faculty members in Taiwan perceive significantly higher climate aspects of research resources, research collaboration, organizational justice, and teaching and research satisfaction. Taiwanese faculty members at national universities tend to perceive a higher level of teaching resources and research satisfaction. Newly hired and veteran faculty members tend to perceive more research resources, while those in their mid-level career tend to perceive fewer research resources. Taiwanese faculty members in humanities and arts tend to perceive less research collaboration than those in education, natural and life sciences, and engineering. Taiwanese faculty members at universities with a longer history tend to perceive a greater climate of internationalization. In terms of policy effects on institutional organizational climate in Taiwan, faculty members at recipients of the Building Teaching Excellence at University Fund tend to perceive more teaching resources. Meanwhile, faculty members at recipients of the Building World-Class University Fund tend to perceive more research resources, research collaboration, internationalization, learning innovation, and research satisfaction.

The findings of this research implicate that gender difference is an important factor to consider when university administration wants to enhance the internal organizational climate in Taiwan. Female faculty members perceived less research resources, research collaboration, organizational justice, and teaching and research satisfaction. This finding suggests that Taiwan's government and higher education institutions can start with balancing the gender difference in these climate factors through encouragement or actual intervention. Years of employment, university history, and research field all have different effects on faculty members' perceived organizational climate aspects. Universities that received the Building World-Class University Fund tend to perform better on numerous aspects in the organizational climate, indicating that these universities are better-performing organizations in Taiwan regardless of the policy effects or that they were already excellent universities before the fund and after the fund became excellent institutions. Thus, the Taiwanese government can consider the next step of policy intervention to equally enhance organizational climate of all universities or to strengthen a few institutions to make them top universities in the world's rankings.

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The Feasibility of Implementing the Balanced Scorecard (Case Study: Nationwide Provincial Telecom Companies)

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Abstract

The purpose of this study was to evaluate the feasibility of using “balanced scorecard technique” in assessing the performance of provincial telecommunications companies throughout the country. Balanced Scorecard is one of the management accounting techniques that first presented in 1992 by Robert Kaplan and David Norton. This technique evaluates the organization from four perspectives including financial, customer, internal processes, and learning and growth. the main aims of this research is to identify the role of balance scorecard (BSC) represent in better performance of organizations and to shed light on the impacts of balance scorecard on organizational performance. Furthermore, currently there is lack of published research on BSC within telecommunication companies, so it has motivated us to highlight gaps in this research and to outline some ideas for future research. In this study, four perspectives of the balanced scorecard as a main hypothesis and four secondary hypotheses were investigated. The results of this research suggested that the possibility of indexing in all four perspectives of the balanced scorecard for the provincial telecommunication companies were present. But so far, the pre-needs and aspirations for the implementation of this technique in these companies have not been provided. Also from respondents prospective, customer perspective was ranked the most important factor and prospective of internal processes, finance, growth and learning, were placed in next rankings respectively.

Keywords: balanced scorecard, performance evaluation, management accounting, provincial telecommunications companies

1. Introduction

Due to the increasing change in the environment and factors affecting organizations, traditional performance evaluation models are not responsive to these changes, no longer. This is because the mere use of financial measures to assess performance. The simultaneous use of financial measures and non-financial criteria to assess the performance using the balanced Scorecard technique have been adopted by many companies. Almost 60 percent of the thousands of companies listed in the Fortune in America, accepted the concept of the balanced scorecard or are familiar with it (Silk, 1998, p. 283). The balanced scorecard changes the basic strategy and objective of the company to organized goals and criteria in four aspects including financial, customer, internal processes and learning and growth (Kaplan & Atkinson, 2005, p. 368). Translating strategy into operation item, aligning the organization units to the strategy, communicating strategy to employee and providing feedback and learning (wasaton chutibhinyo, 2012). BSC as Kaplan and Norton stated propose an answer to the following four questions: (Fawzi et al., 2011).

1) How do customers see us?
2) What must excel at?
3) Can we continue to improve and create value?
4) How do we look to shareholder?

Provincial telecommunications companies as one of the largest telecommunications service provider in country, which, despite having a large number of non-financial criteria, only use criteria derived from the financial prospective to evaluate their performance. Given the weaknesses of the current evaluation system, the need to design and implement a more comprehensive system to evaluate the performance using financial measures and non-financial criteria are felt. New method that companies have used for successful implementation of the strategies, is the balanced scorecard (Penny, 2001, p. 58).

2. Research Literature

The balanced scorecard was introduced for the first time in 1990 as a performance management tool By Kaplan and Norton. In fact, the balanced scorecard presented a performance measurement system further and more comprehensive than other measures of financial systems. This idea has developed and evolved over time, in a way that as a tool of performance measurement, now has become a strategic management system. The balanced scorecard uses coherent system of financial and non-financial criteria to determine the position of the organization (Michaleska, 2005, p. 752). These criteria smooth the track of staff participation to achieve the final goals of the organization (Niven, 2002). So, the more strategic objectives are designed, the nature and number of relevant performance indicators will also increase (Sean Chen et al., 2006). In the balanced scorecard, in addition to financial indicators, the organization situation will be assessed in terms of indicators, including the perspective of customers, processes, growth and learning. Financial performance is dependent on the satisfaction or non-satisfaction of the clients. Customer satisfaction or dissatisfaction is the result of the effectiveness, efficiency and performance of internal processes of the organization. How to process the quality also depends on human resources, incentives for action and also on information systems (Zendedel, 2006, p. 11).

2.1 The Necessity of Balanced Scorecard

Todays, with the globalization of business, it is necessary that organizations pay more attention to prospective operating procedures as well as the performance of their supply chain and on the other hand, and to align these processes with organization strategic objectives (Fernandes, 2006, p. 623). Generally, the balanced scorecard is necessary for the following reasons (Kirby et al., 2003, p. 7).

- Converting strategy into action;
- Participation of all staff in the definition and strategy providing;
- Management of intangible assets;
- Changes in functions without changes in business structure;
- Measurement of the results;
- Management of daily operations;
- Understanding the cause and effect relationship between the capabilities of processes and strategy;
- Prioritize and allocate resources;
- Proper and continuous feedback to set the priorities;
- Access to a set of measurement indicators.

Many organizations have realized to the importance of continuous and constant operations, including the use of different performance evaluation systems for several years.

2.2 Four Perspectives of the Balanced Scorecard

As shown in Figure 1, the balanced scorecard, changes the organization main objective and strategy into objectives and organized measures in four aspects of financial, customer, internal processes and learning and growth (Kaplan & Atkinson, 2007, pp. 368-369).

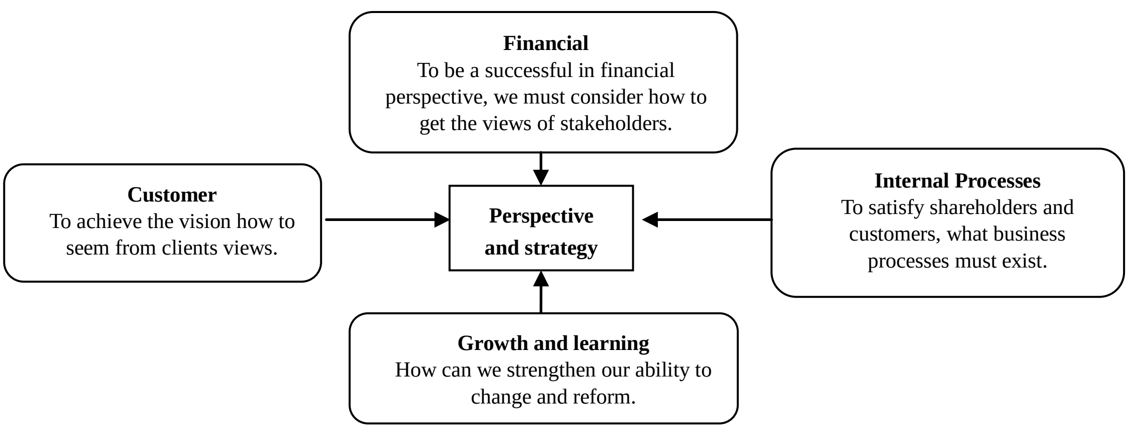

Figure 1. Framework of balanced scorecard (Kaplan & Norton, 1996, p. 11)

According to Figure 2, it must always be a balance between the internal and external organizational prospective. Of the four mentioned aspects, inter organizational processes, learning and growth are internal perspectives, and the customer and financial perspectives are related to external organizational perspectives.

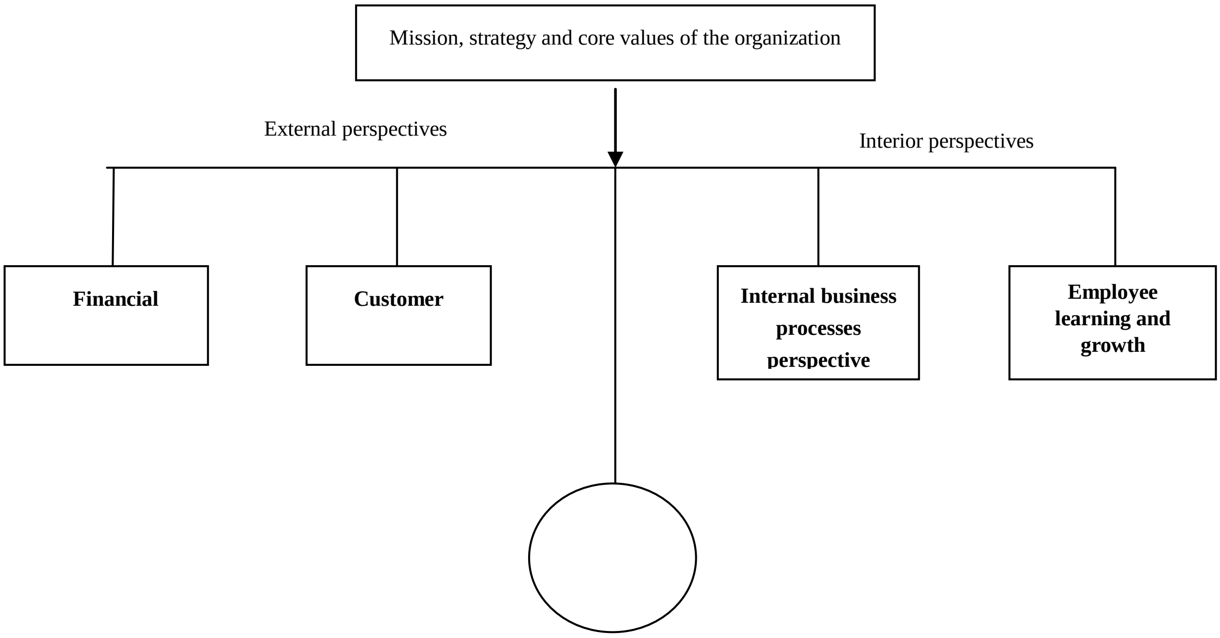

Figure 2. The balance between internal and external perspectives (R. Paul Neon, 2007)

2.2.1 Financial Perspective

This perspective considers of maximizing shareholders wealth as the ultimate goal of an enterprise. All efforts to improve customer satisfaction, improve the quality and reduce delivery time of products and services, if not lead to tangible financial results, will have no value (Smith, 2006). Financial goals often use to measure the company’s viability. For example, operating profit, return on investment, rapid growth in sales, future cash flows and the recent creation of economic added value are of financial measures (Kaplan & Atkinson, 2007, p. 368).

2.2.2 Customer Perspective

In this perspective, the strategy of differentiated value provided to the customer is considered as a target. Companies by implementing a unique strategy and using available resources, have created the most value in their in target markets for customers, maintain them and attract new customers. There are several factors affecting customer satisfaction, including the following factors, the quality of services provided to customers, employee productivity and organizational knowledge. Major customers’ complaints stem from staff interactions with customers (Smith, 2006). In this perspective, from the balanced scorecard, key performance metrics, include customer satisfaction, customer retention, new customer acquisition, customer profitability and market share (Kaplan & Atkinson, 2007, p. 369).

2.2.3 Internal Business Process Perspective

Value is created by internal business processes. Organizations manage their internal processes to differentiate provided value to the customer. Achieving each of the goals of the customer perspective, needs series of operational processes efficiently and effectively, these processes should be set in terms of internal processes and appropriate measures to control the progress should develop (Smith, 2006). The perspective of internal processes remind the necessary prerequisites to perform the work in question guided by the ultimate objectives, and to achieve financial objectives and customer needs (Nir, 2004, pp. 49-50).

2.2.4 Learning and Growth Perspective

The organization’s ability to innovate, improve and learn, ties directly to its value as an organization. Kaplan knows the context of learning, growth, and innovation as the enterprise infrastructure. The main point is that learning to improve organizational processes is essential, improving internal processes to improve customer satisfaction is necessary and improving customer satisfaction to improve the financial results is essential (Garrison et al., 2003, p. 696). Any business or organization has its own balanced assessment criteria to reflect its objectives and strategies. For example, ARPU and ASR indexes are certain telecom companies. But perhaps some of the criteria in all units or a subset are public. Other criteria can be specific to each business unit (Kaplan & Norton, 1996, p. 44). Standards must meet the following characteristics:

• To be relevance: should be related to the company's strategic goals;

• Control: the criteria in this way are affected;

• In terms of leadership activities should guide: the pioneering initiatives are effective;

• Simple: its calculation rules should be easy and understandable;

• Making sure: cannot be manipulated;

• Generality: at different levels of the organization can be interpreted;

• Measurable: without spending money can be found in the form of numbers (Mychaleska, 2005, p. 754).

More researches on the subject of the survey are presented as follows. Kaplan and Norton (1993) examined the use of balanced scorecard in three companies including Rock Water, Apple computer and a manufacturer of small and sophisticated equipment. According to their findings, the balanced scorecard has the most successful when is consistent with the changing process. Also, different parts of business units and business units by using the balanced scorecard, can have proper understanding of the strategy related to them. If the balanced scorecard, has a clear prospective toward business unit strategy, the used information and criteria, will be valuable the important data and information to competitors. Boleyn (2006) by investigating on the reliability and validity of the Balanced Scorecard framework and related criteria to it concluded that the balanced scorecard was a reliable and valid performance evaluation model. Kaplan and Norton (2001) examined application of Balanced Scorecard in companies of Alcatel, Motorola and Sears, documental. They concluded that the implementation of the balanced scorecard with regard to the goals and mission of the companies have effect on the implementation and impact of their activities. The implementation of the balanced scorecard is as a new solution for strategic information in the organization. Chen et al. (2006) based on their research concluded that the participation of chief financial officer, office managers, top management support and organization size are of the factors that are important in the process of implementing the balanced scorecard. Kamali Shahri (2005) conducted a research on the feasibility of implementing a balanced assessment of active home appliances companies in the Tehran Stock Exchange, and concluded that the possibility of implementing the balanced scorecard in these companies exist. Also, the possibilities of indexing in terms of financial, customer, internal processes and learning and growth in home appliances companies exist. Ameli (2007) in a research entitled 'the case of the balanced scorecard implementation challenges with a prospective to its impact on the realization of the Iranian organizations strategy concluded that implementation of the balanced scorecard and designing strategy map, help organizations in strengthening teamwork and aligning organizational capital, and human intelligence with the organizations' strategy. Khajavi and Sarvari (2012) in a study entitled "the feasibility of implementation of balanced assessment, Case study: Southern Petrochemical Companies" concluded that indexing all four perspectives of the balanced assessment, southern petrochemical companies south of the country are possible, but so far the prerequisites and ideas for implementing this technique in southern petrochemical companies have not been well established. Also, customer prospective were the most important factor and opinions of internal processes, financial, learning and growth were in place in next rankings, respectively.

2.3 Balanced Scorecard for Telecommunications Companies

The field of technology and communication has always been associated with significant changes that has caused the telecommunications industry to have a growing trend distinct from other industries. In response to ongoing changes in the operating environment of this industry, managers of telecom companies to stay in the competition and offering their services at acceptable levels, benefit from new techniques of management in their organizations. The balanced scorecard as a performance evaluation system and strategic management is one of the communication tools that has been accepted by the most telecom companies' managers. However, so far, no coherent study of using the balanced scorecard to assess the performance of telecommunication companies has done. In line with the implementation of the general policies of Article 44 of the constitution of the Islamic Republic of Iran, in November 2009 with the transfer of 50% plus one stock of stocks of Telecommunication Company of Iran, privatization of this huge company was actually achieved. Telecommunication Company of Iran, as the dominant operator in the country, dedicated about 99% of fixed phone and 62% of the country's mobile subscribers in Iran's telecommunication network which is unrivaled in the Middle East region. According to the official website of Iran Telecommunication Company, the company's strategy and its strategic plans has focused on seven axes including optimization of costs and benefits, transformation services, strategic partnership with key stakeholders, optimization of network infrastructure, maintaining maximum market share and expanding sales and marketing, organization development, maintenance and development of human resources. Implementation of Iran Telecom company's strategic programs in the area of the creation, operation, development and maintenance of fixed telephone networks and data on non-mother telecom networks and implementation of other obligations of Iran Telecommunication Company in cases such as maintenance and expansion in telecom networks and mobile communications to provincial Telecommunication companies have misplaced. Usefulness of the balanced scorecard for telecom companies is like the other profit and non-profit organizations. Balanced scorecard can benefited identifying and developing strategies to increase consensus of opinion about strategy, linking strategy across the company, aligning people and units objectives with the strategy, the implementation of strategic objectives with long-term goals and annual budgets, periodic performance prospective and providing organizational feedback of a company (Kaplan & Norton, 1996, p. 19). Regarding the mentioned prospective, the main hypothesis of this study were to determine the possibility of implementing the balanced scorecard in the provincial telecommunication companies, to determine the possibility of indexing in financial perspectives of the balanced scorecard in the provincial telecommunication companies, the possibility of indexing in customer perspective of the balanced scorecard in the provincial telecommunication companies, the possibility of indexing in internal processes prospective of the balanced scorecard in the provincial telecommunications companies, and the possibility of indexing in learning and growth perspectives of the balanced scorecard in the provincial telecommunication companies.

3. The Objectives of the Study

The main aim of this study is to recognize the influence of applying the balance scorecard methodologies on organizational performance, so we shared those following objectives.

1) To identify challenges in implementing the BSC on Nationwide Provincial Telecom Companies in Iran as one of developing countries.

2) To study the concept of BSC, And to create an increasing awareness in organization regarding effective balanced scorecard.

3) Contribute to the future development and provide a basis for future research in Iran and other developing countries.

4. Importance of the Study

This study stems its importance from the following reasons:

1) The study will break new ground in balance scorecard field especially for nationwide Provincial Telecom companies in Iran as there is scarcity of research in this field.

2) It examines the use and implementation of balance scorecard in nationwide provincial telecom companies.

3) The findings of this study will be valuable for other private firms specially telecommunication companies that wish to use the balance scorecard model to measure their performance, and to create a better understanding for balance scorecard.

4) The outcome of the study will be valuable academicians; they can gain insights and ideas for future research.

5. Research Hypotheses

So as to reach the objectives intended for this study, the subsequent research hypotheses are stated based on the revelation in the review of literature relating to the balance scorecard and organizational performance.

5.1 Main Hypotheses

- Possibility of implementing the balance scorecard in the provincial telecommunication companies existed.

5.2 Sub-Hypotheses

1) Possibility of indexing from the financial perspective, in the provincial telecommunication companies existed.

2) Possibility of indexing from the customer perspective, in the provincial telecommunication companies existed.

3) Possibility of indexing from the internal processes perspective, in the provincial telecommunication

companies existed.

4) Possibility of indexing from the learning & growth perspective, in the provincial telecommunication companies existed.

6. Materials and Methods

6.1 Sample

The current research was an applied study and in terms of data collection was done by descriptive method and was a case study, too. The sample size of this study, were all managers and financial heads of provincial telecommunication companies, that their numbers were 62 people and were working at 31 provincial telecommunications companies. To reduce sampling errors, increase the test ability, novelty of the balanced scorecard technique in Iran, as well as the limited number of provincial telecommunications companies, the total population of all managers and financial heads of provincial telecommunication companies across the country have been analyzed.

6.2 Data Collection

The 62 questionnaires distributed, 58 questionnaires were collected, that were useable for research. The measuring tool for this research was questionnaire, so the required information to test research hypotheses have been collected through a researcher pre-designed documented questionnaire. The research questionnaire has been designed based on Likert 5 options and scores given to each question was in the spectral range of +1 to +5. So, the average range or average point of research hypotheses was the number of 3, and can measure and evaluate the average mean of the research components in comparison to assumed mean of 3. If the mean responses were statistically significantly higher than 3, would indicate the hypothesis confirmation and if the mean responses were statistically significantly lower than 3, suggests the rejection of research hypothesis. In some cases the questionnaires were collected by calling on and in some cases via e-mail or fax were sent and collected. One of the authors of the current research that is the financial Supervisors of a provincial telecommunications companies and according to the working relationship with managers and financial heads of provincial telecommunications companies, by calling and sending emails and faxes distributed and collected the questionnaires.

6.3 Research Philosophy and Methods

The research questionnaire had 60 questions. Questions 1 to 24 were related to the prerequisites and required thinking to implement the balanced scorecard. Questions such as the used system to evaluate performance, strategies and prospects, promotion and reward systems and indicators used to evaluate the performance of provincial telecommunication companies were included in this sector. Questions of 25 to 31 were related to the first sub-research hypothesis, the possibility of indexing in financial perspective. Questions such as how to efficient use of assets, policies related to reduce the cost of services providing, strategies related to attract new income sources, were of the questions related to this hypothesis. Questions of 32 to 39 were related to the second sub-research hypothesis, the possibility of indexing in the customer perspective. Questions such as how to communicate with customers (subscribers) and companies' managers, how to handle the complaints of customers (subscribers) and a variety of services provided for this hypothesis have been designed. Questions of 40 to 50 were related to the third sub-hypothesis, the possibility of indexing in internal business processes perspective. Questions such strategies and measures to support new applications, innovation and services development, and special strategies to reduce the administrative procedures for customers for this hypothesis were designed. Finally, questions of 51 to 60 to explored the fourth sub-hypothesis of the research, possibility of indexing in learning and growth perspective. Of the questions related to this hypothesis were information systems and advanced technology in the company, rewards and staff training programs, job training, and innovation in services providing and how to deliver it. Also, to analyze the data, SPSS version 21, using non-parametric tests of Qp (median test) at 95% confidence level and 5% errors, research hypotheses have been tested. To determine the significance relationship between basic questions of the questionnaire and research hypotheses, Friedman and H test (Kruskal - Wallis) were used.

7. Results

7.1 Running the Hypothesis Test Based on Main Hypothesis

The main hypothesis of the research was analyzed from two aspects. In this regard, questions of 1 to 60 of the study as the feasibility of implementation of the balanced scorecard were evaluated and then questions of 1 to 24 as the intellectual and administrative prerequisites necessary to implement the balanced scorecard were studied and tested.

7.1.1 Running the Hypothesis Testing Based on Questions of 1 to 60 of the Research

Table 1. Results of the test related to the main hypothesis

Ranking	no.	Observed P(%)	P of test	p-value
Lesser or equal to median	21	0.36	0.5	0.004
greater than the median	37	0.64		
Total	58	1.00		

As can be seen in Table 1, 37 out of 58 cases (64%) were located greater than the median. Therefore, it is expected that the null hypothesis to be rejected. Regarding the P-value obtained were equivalent to 0.004, at the level of 5%, the main hypothesis (questions of 1 to 60) were confirmed. Thus, according to the results it can be concluded that the possibility of implementing the balanced scorecard in the provincial telecommunication companies existed.

7.1.2 Running the Hypothesis Test Based on Questions of 1 to 24 of the Research

Table 2. Results of the test related to test of the main hypothesis (prerequisites)

Ranking	no.	Observed P(%)	P of test	p-value
lesser or equal to median	23	0.40	0.5	0.062
greater than the median	35	0.60		
Total	58	1.00		

As can be seen in Table 2, in 23 of 58 cases (%) were located lesser or equal to the median, so, it is expected that the null hypothesis was not rejected. Regarding the P values obtained that was 0.062, at the level of 5%, the null hypothesis was not rejected. Therefore, it can conclude that the prerequisites and needed ideas for implementing the balanced scorecard in the provincial telecommunications companies have not been well established. The first sub-hypothesis explored the possibility of indexing in the financial perspective of balanced Scorecard.

7.2 Running the Hypothesis Test Based on Sub- Hypothesis

7.2.1 The Test Related to the First Sub- Hypothesis

Table 3. Results of test related to the first sub-hypothesis

Ranking	no.	Observed P(%)	P of test	p-value
lesser or equal to median	17	0.30	0.5	0.001
greater than the median	41	0.70		
Total	58	1.00		

In Table 3, the results of the questions of first sub-hypothesis (questions of 25 to 31) have been shown. According to the results, it can be concluded that the possibility of indexing from the financial prospective, in provincial telecommunications companies existed.

7.2.2 The Test Related to the Second Sub-Hypothesis

The second sub-hypothesis explored the possibility of indexing in customer perspective (shared) of the balanced scorecard.

Table 4. Results of the test related to the second sub-hypothesis

Ranking	no.	Observed P(%)	P of test	p-value
lesser or equal to median	12	0.20	0.5	0.000
greater than the median	46	0.80		
Total	58	1.00		

As can be seen in Table 4, according to the results of the second sub-hypothesis questions (questions 32 to 39), it can be conclude that the possibility of indexing from customer perspective (shared) in provincial telecommunication companies existed.

7.2.3 The Test Related to the Third Sub-Hypothesis

The third sub-hypothesis was about the possibility of indexing from internal processes perspective of the balanced scorecard.

Table 5. Results of test related to the third sub-hypothesis

Ranking	no.	Observed P(%)	P of test	p-value
lesser or equal to median	18	0.31	0.5	0.000
greater than the median	40	0.69		
Total	58	1.00		

According to the obtained results (Table 5) of the questions of the third sub-hypothesis (questions of 40 to 50), it can be concluded that the possibility of indexing from internal processes perspective of the balanced scorecard in the provincial telecommunication companies existed.

7.2.4 The Test Related to the Fourth Sub-Hypothesis

The fourth sub-hypothesis explored the possibility of indexing from learning and growth perspectives of the balanced scorecard.

Table 5. Results of test related to the fourth sub-hypothesis

Ranking	no.	Observed P(%)	P of test	p-value
lesser or equal to median	22	0.38	0.5	**0.024**
greater than the median	36	0.62		
Total	58	1.00		

According to the results (Table 6) obtained from the fourth sub-hypothesis questions (questions of 51 to 60), it can be concluded that the possibility of indexing from learning and growth perspectives of the balanced scorecard in the provincial telecommunication companies existed. Generally, regarding the results of test of the main hypothesis and four sub-hypothesis, it can be concluded that the possibility of implementing and indexing in each four perspectives of the balanced scorecard in the provincial telecommunication companies existed.

7.3 Comparison of Mean Ranking between Factors Using Friedman Test

By using Friedman test, can compare the ranking and the degree of strengthen of the hypotheses. Tables 7 and 8, show the test results.

Table 7. The results of comparison test of ranking mean of hypotheses using Friedman's test

Ranking mean	Comparable factors	Ranking
3.79	Second hypothesis	1
3.31	Third hypothesis	2
2.99	First hypothesis	3
2.54	Fourth hypothesis	4

Table 8. Z-test and the significance level of Friedman test to compare the hypotheses ranking

Significant level	degrees of freedom	Chi-square	no.
0.000	4	55.633	58

As can be seen, the significant levels in the above test were less than 5%, so it can be concluded that the mean ranking of the hypotheses were not the same. Thus, according to the obtained results, it clears that the respondents count the highest possible indexing from the customer perspective and the lowest of indexing possibility from the perspective of growth and learning.

7.4 The Effect of Any General Questions of the Questionnaire on the Research Hypothesis

In this section the results of the presence or absence of a significant relationship between the general questions of the questionnaire, including gender, age, education level, work experience and the organizational post were examined and determined with the research hypotheses using non-parametric tests of U- Mann-Whitney test and H-Kruskal Wallis:

- Gender variable had impact on the answers to the first and fourth hypotheses, but did not effect on the answers of the second and third hypotheses.

- Age variable had impact on the answers to the second and fourth hypotheses, but did not effect on the answers of the first and third hypotheses.

- Work experience variable had impact on the answers to the second, third and fourth hypotheses, but did not effect on the answers of the first hypotheses.

- Organizational post variable had significant effect on answers related to all hypotheses.

8. Discussion and Conclusion

The results of this study showed that it was possible to implement the balanced scorecard in the provincial telecommunications companies. Also, indexing in financial, customer, internal processes, learning and growth prospective were possible, but the prerequisites and ideas needed for implementing this technique has still not well established. On the other hand, according to the Friedman test, the customer perspective of the balanced scorecard as the most important factor and internal processes, financial, growth and learning perspectives were placed in the next priorities, respectively. According to the obtained results, it can be said that provincial telecommunications companies have realized to the importance of non-financial measures to evaluate the performance assessment, but due to limitations of the prerequisites did not use the balanced scorecard for performance evaluation. Of other reasons for not use of the Balanced Scorecard technique by provincial telecommunications companies can mention the following items:

1) The relatively high cost of implementing the balanced scorecard technique.

2) The telecommunications industry in country is not competitive and there was no proper ranking for evaluation of provincial telecommunications companies.

3) Balanced Scorecard technique was novel for country, and some managers and even some accountants were not familiar with this technique.

4) Balanced Scorecard technique implementation and operationalization is difficult.

Regarding the items mentioned above, it was suggested to Iran telecommunication stock company managers, that by considering potential benefits of balanced scorecard, perform to improve limitations and provide required prerequisites, and create the possibility of implementing balanced scorecard technique at the level of telecommunications companies. As well, indexing in each perspectives of balanced scorecard should be done and evaluation of the performance of telecommunications companies in all four provincial perspective should be conducted.

9. Limitation and Direction for Future Research

Although there are encouraged result, this research still have un inescapable limitation, the most obvious limitation of the present study is the generalize ability of the study, this study has been carried out in private telecommunication companies and the researchers believed that in Iran each organization BSC is unique, so care must be taken in generalizing our finding. Also, The lack of familiarity of some respondents with balanced scorecard technique was of the limitation of the survey.

The finding of this study point out to several avenues for future research in this area and according to above research processes some suggestions are state for future research and they are summed up as follow:

1) A future research in this field could be carried out to examine the link between strategic planning, communication of strategy, and effective use of BSC in provincial telecommunications companies.

2) As this research work carried out in provincial telecommunications companies, an empirical research could be carried out to explore the feasibility of the BSC on public telecommunications companies.

3) Since this study depends only on questionnaire as means of data collecting and the questions contained in questionnaire are plentiful this study recommend that future researchers should be carried out using the questionnaire and interview face to face to get an immediately explanations from interviewees when it is necesseray.

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A Consumer Perspective on Grocery Retailers' Differentiation

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Abstract

Increasing competition in the Italian grocery market is pressing retailers to search for new ways to differentiate themselves and gain a better competitive position in the mind of consumers. In this scenario, we intend to explore consumers' perception of grocery retailers in order to understand which store attributes consumers consider to be most important when choosing where to shop and which store attributes consumers perceive different between retail store formats and between grocery retailers. Our findings show that consumers do not perceive great differences neither among retail store formats, nor among grocery retailers. Even if they recognize structural differences among retail store formats, they perceive a growing similarity between them in terms of meeting shopping needs. Moreover, only few retailers are perceived as highly differentiated in managing the retail mix levers. Our work provides grocery retailers a specific knowledge of the attributes that consumers consider to be most important when making grocery store choice and suggests retailers which levers they should manage in order to be perceived differentiated from competitors, achieve a sustainable competitive advantage and consolidate their position in the market.

Keywords: store choice, store format choice, differentiation, shopper behavior

1. Introduction

The economic recession and the fundamental shifts in consumer needs have generated significant changes on the retail food landscape in the Italian market. The structure of the retail industry is evolving: according to recent trade reports, small and medium size retail store formats (i.e. convenience store, small/medium sizes supermarkets and discounts) are consistently outperforming large scale formats (i.e. large supermarkets and hypermarkets). Marketing strategies are changing too. Grocery retailers are developing new store formats aimed to capture the competitor's customers and expand their target market: discounters are improving the quality of the services to compete with the supermarkets, while supermarkets and hypermarkets are developing lower pricing policies to compete with discounters.

The emergence of these "hybrid" store formats has radically modified the competitive landscape of the sector, with significant implications for all channel relationships: it affects horizontal competition between retailers, commercial relationships between retailers and manufacturers and last, but not least, consumers' decision-making on purchasing.

Firstly, competition in Italian grocery retailing has reached an unprecedented level of complexity: while in the past it took place within the same retail format, today the competition affects also different retail formats. Supermarkets do not compete only with other supermarkets (intraformat competition), but also with discounts or convenience stores (interformat competition). Only recently some authors have started to recognize this new competition dimension (Lugli, 2004; Gonzales-Benito et al., 2005; Cummins et al., 2008; Findlay & Sparks, 2008; Reutterer & Teller, 2009) arguing that there is an increasing use of multiple stores and formats since they offer different opportunities to satisfy bundles of wants and needs, depending on the shopping occasion. According to the most recent contributions (Cardinali & Bellini, 2014), the interformat competition is becoming more intense than the intraformat competition.

In light of the growing competition among different retail store formats, industrial companies should review the allocation of their budgets on customer/channel. So far, the trade marketing budget has been allocated according to the retail store formats, since they were highly differentiated. Today, the increasing standardization and convergence among retail formats makes this practice ineffective and suggest manufacturers to find new criteria for segmenting retailers.

Finally, convergence affects retail patronage, since consumers are changing the way to use various grocery retail formats to satisfy their needs and wants. Even if store choice and store patronage have been widely studied across the world, there is still vast scope for research and analysis in front of a retailing environment that changes rapidly, leading to change shopper expectations and realignment of the choice set of stores. In the Italian market this phenomenon is gaining a greater importance since the hybrid store formats are providing new options to shop for the consumer.

Today consumers have a wide choice of stores and retail formats where they can choose to shop. In such scenario, it is important for retailers to better understand which levers are most effective for gaining store patronage and reducing consumers' mobility among grocery stores.

Gaining competitive advantage in retailing requires a deep knowledge of the attributes consumers use to evaluate stores and a proper understanding of why these attributes are important (Mitchell & Kiral, 1998). Although there is a considerable body of literature about store choice and store patronage, changes in retail landscape make the pattern of store choice more complex than in the past and the previous assumptions no longer applicable to the Italian context.

Starting from these observations, our work explores consumers' perception of grocery retailers in order to identify which store attributes consumers perceive different between grocery stores and which attributes consumers consider to be most important when choosing where to shop. Our purpose is to suggest grocery retailers new ways to differentiate themselves and achieve a better competitive position in the minds of consumers.

2. Literature Review

Store choice and retail format choice have been widely studied in the literature.

Store choice is recognised as a cognitive process where information play an important role as any other purchase decision (Sinha & Banerjee, 2004). Store choice behaviour shoppers share many similarities with brand choice, except for the spatial dimension: while brand choice is devoid of any geography, the choice of a store is very much influenced by location (Fotheringham, 1988; Meyer & Eagle, 1982).

Store choice is a dynamic decision (Leszczyc & Sinha, 2000) and could be conceptualized as a problem of deciding when and where to shop. This decision depends on different dimensions regarding shopping experience and store attributes.

On one hand, store choice has been found dependent on the level of pre-purchase information regarding the brand (Dash et al., 1976), the role of ambience (Kotler, 1973), the quality of the shopping experience (Treblanche, 1999), the type of shopping task (Kenhove et al., 1999). In particularly, according to Kenhove et al. (1999), store choice is differentiated by the nature of the task, which means that store choice depends on the goals set by the shoppers to resolve the needs derived out of a specific situation such as urgent purchase, large quantities, regular purchase, etc. Store choice is also dependent on the timing of shopping trips as consumers may go to a local store for short "fill-in" trips and to a more distant grocery store for regular shopping trips (Kahn & Schmittlein, 1988).

On the other hand, store choice has been found dependent on some store attributes such as price image perception (Hansen & Singh, 2009), breadth and depth of assortment (Briesch, Chintagunta, & Fox, 2009), location convenience (Huff, 1964), the ability to do one-stop shopping (Messinger & Narasimhan, 1997), and store service, an important element in store positioning (Lal & Rao, 1997).

A broad conclusion about store choice behaviour among consumers indicates that image and perceptions have significant impact on the final outcome (Sinah & Banerjee, 2004). In literature, store image has been studied as an important antecedent of store preference (Thang & Tan, 2003), consumer satisfaction (Martenson, 2007), the frequency of store visits (Pan & Zinkhan, 2006), shopping trips, shopping expenditure and store loyalty (Arnold et al., 1983). Store image is an important means of managing store positioning (Birtwistle et al., 1999, Uusitalo, 2001), particularly under current competitive conditions.

The relationship between store attributes and retail format choice is also examined in the literature (Carpenter & Moore, 2006). Previous studies have shown that product assortment, availability, convenience and pricing are significant drivers of format choice (Taylor, 2003). Hansen and Solgaard (2004) identified the product assortment as the single most influential variable affecting the choice of retail formats across three formats: discount stores, hypermarkets and conventional supermarkets. In addition, price level and location appeared to be influential factors in terms of retail format choice. Quality and service, otherwise, did not appear to be influential across the formats.

While these contributions assert that the grocery industry is strongly driven by competitiveness, other authors have reached different results. Fox et al. (2004) identified frequency of store promotion efforts and product assortment related factors to be highly influential on format choice in the grocery sector. Interestingly, price was shown to be less influential. Carpenter and Moore (2006) suggest that product selection and courtesy of personnel are also very important in determining format choice. According to their study of the Usa grocery retailing industry, cleanliness was the most important attribute regardless format choice. Surprisingly, price competitiveness did not rank among the top five attributes for occasional shoppers in the supercentre format or the specialty grocery format and ranked only fifth among these shoppers for the warehouse format.

Finally, Fox et al. (2004) provides important findings relevant to our research since they starts to recognize a similarity among different store formats and a less differentiation among them. This study states that trips to mass merchandisers are not necessarily replacing trips to the supermarket since frequent shoppers of mass merchandisers were also frequent shoppers of other formats (e.g. supermarkets).

The frequency of cross shopping behaviours among consumers highlights the importance of examining retail format choice. Given the evolving retail industry and the growing similarities between store formats, in fact, the pattern of store choice has become more complex than in the past and the previous assumptions may no longer be applicable to the Italian context. According to our previous study, in fact, supermarkets, convenience stores and hypermarkets are becoming similar in terms of layout, promotion and pricing policy, range of value items and services (Cardinali & Bellini, 2014). The increasing convergence among different retail formats and the trend to develop “hybrid” store formats are providing new options to shop for the consumer.

In this new context both retailers and shoppers are currently in an evaluation phase where it is not clear what may drive the choice of store in the longer term what are the levers to manage in order to be chosen and to be preferred from competitors.

3. Research Aims and Methodology

Our research explores the consumers’ perception of grocery retailers in order to understand which shopping needs drive the consumers’ choice of grocery stores and which store attributes consumers perceive different between retail store formats and grocery retailers. In particular, our work starts from the following research questions:

Q1. Which shopping needs drive the consumers’ choice of grocery stores?

Q2. Which perception consumers have about retail store formats in terms of meeting shopping needs?

Q3. Which perception consumers have about grocery retailers?

Q4. Which are the store attributes that support the retailers’ differentiation?

In order to pursue these goals, this study used a two-stage approach to collect the data. Firstly, we carried out an empirical research based on the focus group method aimed to explore consumer experience with grocery stores (Q1) and retail store formats (Q2). Secondly, we conducted a consumer survey based on a structured questionnaire aimed to measure the consumers’ perception of grocery retailers (Q3) and identify the store attributes that contribute more than others to retailers’ differentiation (Q4).

Focus groups method is one of the major marketing research tools used to gain insight into consumers’ thoughts, feelings and experience (Kotler & Armstrong, 1999). This method was appropriated for this study because it provided a way to uncover consumers’ experience with grocery retailers, exploring store patronage and trust dimensions.

Standard focus group protocol was followed throughout (Templeton, 1994). First, the two lead researchers have developed an interview guide and they have identified the areas to explore, that would likely yield relevant information in relation to the topic under investigation. Specifically, discussion was stimulated by a semi-structured interview aimed to investigate the role of retail store formats and store attributes in purchase decisions. Next, an initial pool of candidates for the focus groups sessions was developed by using the snowballing technique in which each subsequent contact is asked for additional names. Participants were chosen to provide a mix of men and women, a range of ages from young adults through retirement age and various households types, including singles and couples with and without children. Stated research goals, it was important for the respondents to be responsible for household shopping.

Our focus groups research involved a sample of 28 consumers in four groups of 7. Each of four focus groups sessions consisted of 7 individuals and each participant was the primary grocery-buying agent for the household. Each individual who participated in the focus groups completed a brief survey at the end of each session concerning the profile socio-demographics (Table 1).

Table 1. Description of focus groups participants (N=28)

ID	Gender	Age (years)	Family	Employment status
P1_f1	Female	58	Married with children	Employee
P2_f1	Female	27	Married with children	Employee
P3_f1	Female	44	Married with children	Employee
P4_f1	Female	39	Married with children	Employee
P5_f1	Male	25	Single	Student
P6_f1	Female	25	Single	Student
P7_f1	Male	29	Single	Student
P1_f2	Female	48	Married with children	Employee
P2_f2	Female	25	Single	Student
P3_f2	Female	23	Single	Student
P4_f2	Female	49	Married with children	Employee
P5_f2	Female	45	Married	Employee
P6_f2	Female	39	Single	Employee
P7_f2	Male	25	Single	Student
P1_f3	Female	36	Married with children	Employee
P2_f3	Female	44	Married with children	Employee
P3_f3	Female	48	Married with children	Employee
P4_f3	Female	24	Single	Student
P5_f3	Female	26	Single	Employee
P6_f3	Male	28	Single	Employee
P7_f3	Female	45	Married with children	Employee
P1_f4	Female	51	Married with children	Employee
P2_f4	Male	45	Single	Employee
P3_f4	Female	33	Married with children	Employee
P4_f4	Female	41	Single	Employee
P5_f4	Female	42	Single	Employee
P6_f4	Female	25	Single	Student
P7_f4	Female	26	Single	Student

Focus groups were conducted in the city of Milan. This market offers consumers a variety of food retail formats including supermarkets, hypermarkets, convenience stores and discount, as well as a variety of retailers companies. Focus group discussion lasted for about two hours, were recorded and later transcribed in their entirety so that both text and audio versions of the sessions could be used to analyse themes.

The analysis was conducted in a two-stage. First, the researchers read the transcripts to become familiar with the data and define the codes that emerged from the discussion using the template method (King, 1998) that combines theory-driven approach (themes identified a priori) with the data-driven (themes emerging from the discussion). The researchers then read again the transcripts together, discussed the possible differences in the codes identified and reached a suitable agreement interpretation. In the second step, the codes were aggregated into the top level categories considering similarities between them. A content analysis software (NVivo) was used to support the categorization of data. Some of the participants' comments were selected among those more representative of the results and used to discuss the results.

As a qualitative research method, focus groups interviewing has some disadvantages include small sample size, lack of generalizability of results and cost. For this reason, we have conjoined qualitative and quantitative research tools. In particular, we conducted a second empirical research based on a structure questionnaire which was administered to 50 consumers of the 20 major Italian grocery retailers (total 1000 customers). Consumers were selected to reflect the composition of the customer base (Table 2).

Table 2. Socio-demographic characteristics of customer sample

Characteristics	% sample
Gender	
Male	36.8
Female	63.2
Age (years)	
18-30	19.7
31-50	37.8
51-65	25.1
Over 65	17.4
Shopper profile	
Responsible for household shopping	76.2
Not responsible for household shopping	23.8

We investigate the consumers' perception with reference to the multiple attributes which make up store image, according to those identified by the main literature (Bloemer & de Ruyter, 1998; Hansen & Deutscher, 1977; Cox & Brittain, 2000; McGoldrick, 2002; Sinah & Banerjee, 2004).

The store attributes examined in our research are listed in Table 3. Participants were asked to assess to what extent their primary store was "different" from competitors along the store attributes. On the basis of these data, we constructed an indicator of differentiation by asking consumers to express their perception of "diversity" of each store attributes for each retailer in comparison with its competitors (evaluating each lever on a scale from 1-same, to 3-completely different). The percentage of customer ranking the store attributes as "fairly" different or "completely" different is then assumed as "differentiation indicator". The survey data were analysed using SPSS software analysis.

Table 3. Variables used in the study

Store attributes	Measurement scale	Definition
Range (variety of range, depth of range, quality of fresh foods, quality of store brands, national brands, non-food products, premium products, value brands)	Metric	Range perception of differentiation from 1 (same) to 3 (completely different)
Promotions (short term prices, short collection, special promotions)	Metric	Promotions perception of differentiation from 1 (same) to 3 (completely different)
Pricing (long term prices)	Metric	Pricing perception of differentiation from 1 (same) to 3 (completely different)
Communication (pricing communication, promotions communication, services communication)	Metric	Communication perception of differentiation from 1 (same) to 3 (completely different)
In-store marketing (store layout, display, tasting opportunities and demonstrations)	Metric	In-store marketing perception of differentiation from 1 (same) to 3 (completely different)
Ambience (quality of store environment, cleanness and tidiness)	Metric	Ambience perception of differentiation from 1 (same) to 3 (completely different)
Technology (self scanning, automatic checkout, electronic kiosks)	Metric	Technology perception of differentiation from 1 (same) to 3 (completely different)
Services (restaurants and café, finance and insurance, entertainment, telecommunications services, gas station)	Metric	Services perception of differentiation from 1 (same) to 3 (completely different)

4. Findings and Discussion

4.1 Shopping Needs Driving the Consumers' Choice of Grocery Stores

In order to identify the shopping needs which drive the choice of a grocery store (Q1), we asked focus group participants to write down words and phrases associated with their usual store. This discussion led to identify the categories and codes listed in Table 4. In particular, words and phrases associated with the usual grocery outlet can be grouped into four conceptual categories of consumer needs: time-saving (40% of associations), quality (31% of associations), money savings (18% of associations) and trust (9% of associations).

Table 4. Categories and codes of the thematic analysis

Categories	*Codes*	*Frequency %**	
Time savings			40%
	Exogenous factors (location, parking, opening time, store size)	14%	
	Endogenous factors (instore services, layout, display, promotions, range, customer service)	26%	
Quality of the shopping experience			31%
	Range	18%	
	Environment	9%	
	Customer services	4%	
Money savings			18%
	Long term prices	10%	
	Short term prices (promotion)	8%	
Trust			9%
	Familiar	5%	
	Guide in the choice	3%	
	Loyalty program	1%	

Note. *The remaining 3% of the words and phrases associated with the main store are not categorized because they refer to an occasional frequency of the store (e.g. the store is attended only for "home care products", "non- food items…).

The choice of the grocery store is guided firstly by the need to save time (40% of the associations). This need can be satisfied by exogenous factors concerning the context or the format ("the store is easy to get to" or "the store is not too big and not too small"), but also by endogenous factors concerning the retail mix levers. In particular, range helps to save time when it is 'very wide' and consequently allows consumers to make a single shopping expedition, but also when it is 'basic' and allow consumers to shop quickly because there are less alternative to evaluate. Store layout helps to save time if it 'not too spread out', for example when items on special offer are aggregated in promotional areas. Also the display helps to shop fast when it is 'logically organized' and 'products are well-presented'. Finally, consumers are able to save time when the store offers some services aimed to make the check out fast, such as "self-scanning" of "self check out".

The second reason for choosing a grocery store is the quality of the shopping experience (31% of the associations). This need is satisfied firstly by the range, which is evaluated taking into account the quality of the products ('quality of fresh products' and 'quality of private label') but also the degree of differentiation and innovation (the presence of "ethnic products' and 'displays of newly launched products'). A good shopping experience for consumers depends also on the quality of the environment ('pleasant', 'light', 'clean' and 'tidy') and the customer services (sales personnel is 'competent', 'polite' and 'ready to listen').

Contrary to our expectations, a low price policy is not a priority when choosing where to shop: only 18% of words and phrases associated with the usual grocery store reflect a need to save money either in a long-term dimension ('good price-quality ratio') than in a short-term one ('special offers' and "promotions"). For participants, the need to "save money" appears to be less important than the need to "save time".

Finally, the last reason for choosing a grocery store is the trust to the retailer: 9% of the associations reflect the need to be reassured (the store must be "trustworthy", "welcoming", "familiar") and oriented in shopping decisions (the store is preferred when "It gives ideas for cooking", or "advice on nutrition").

In conclusion, time-saving, quality of shopping experience, money saving and trust appear to be the four pillars supporting the retailer patronage.

4.2 Consumers' Perception of Retail Store Formats

In order to explore consumer experience with retail store formats, and to answer our second research question (Q2), we asked participants to discuss the reasons to choose a particular retail store formats and the role of them in meeting these needs. The purpose was to better understand which role the different store formats have in satisfying the four shopping needs identified before (time-saving, quality, money saving, trust).

First of all, we have started by asking participants to explain what "Supermarket", "Hypermarket", "Convenience Store" and "Discount" meant for them. Consumers recognize the "mission" of each store formats: they have identified, in fact, the supermarket as the "point of sale for food products", the discount as the "shop for cheap products", the hypermarket as the "shop for food and non-food products" and the convenience store as the "shop for emergencies".

Secondly, we discuss the role of retail store formats in meeting their shopping needs. Consumers recognize differences in some store attributes (chiefly size and range), but they do not perceive big differences among store formats in terms of meeting their shopping needs.

In particular, the need to "save time" is satisfied firstly by small retail store formats (convenience store, discount or small supermarkets), but it can be also satisfied by hypermarkets. Even if most participants perceive the "hypermarket" as "time-wasting", because it is too big with a width range that confuse them, some consumers can successfully satisfy the need to "save time" in the hypermarket thanks to the presence of some services that make shopping fast. During the discussion, in fact, some participants remarked the presence of "small baskets on wheels for small quantities of goods" and 'Fast check-outs" which help them to shop faster. They also remarked "My usual hypermarket is like a supermarket: clothes and other departments are separate and you hardly see them, I don't waste time". From this perspective, hypermarket is not so different from supermarket thanks to in-store services or layout model, which help consumers to shop quickly meeting needs previously satisfied only by smaller formats. In other words, in-store services and layout make the two store formats – hypermarket and supermarket – more similar than in the past, initiating a convergence process.

Similarities among retail store formats could be appreciated also regarding the need to "save money". This need is met by the discount store format, which is spontaneously associated with "low prices", but it could be satisfied also by the supermarket. During the discussion, some participants said "You can find low prices also at the supermarket, but the quality is better, so there is no reason to go to the discount". They also remarked "Prices at discount stores are similar to private label prices, so it is not worth going there". According to this perspective, the need to "save money" could be met by different store formats: supermarkets and hypermarkets as well as discount.

Lastly, the needs for "quality" and "trust" are satisfied by small formats (convenience stores or small supermarkets), associated with 'quality' and 'trust relationship" with retailer. Many participants, in fact, have associated the big stores with impersonal and confusion: hypermarkets, large supermarkets and superstores are seen "impersonal, cold and lacking in personal interactions". However, there are some consumers that find "quality" and "trust" also in the big stores, thanks to an efficient customer services and the relationship with competent sales personnel. They remarked that in the hypermarket "You can taste samples of cheese, jam and honey, like in a traditional store" and "If you want a particular cut of meat, personnel will prepare it for you just like the old-fashioned butcher". In other words, customer service is bringing the hypermarket closest to the traditional store meeting the needs for quality and trust.

To summarize, consumers perceived a growing convergence among store formats: although they recognize the mission of the different store formats, they do not perceive great differences in terms of meeting shopping needs. All store formats are able to satisfy the need to "save time", thanks to in-store services and layout, the need to "save money", thanks to promotion or private label policy, the need to "quality" and "trust", thanks to customer services.

4.3 Consumers' Perception of Grocery Retailers

Relationship marketing is built on the concept of developing and maintaining long-term relationship between consumers and retailers. However, relationship building that result in loyalty is difficult to achieve if retailers are less differentiated. Since retail store formats are perceived as less differentiated than in the past, as emerged in the focus group discussion, it becomes important to explore consumer perception of grocery retailers in order to understand which are the reasons for store patronage and a trust relationship with retailers.

The quantitative empirical research has tried to investigate this topic and to answer to our last two research questions (Q3 and Q4). Specifically, to answer our third question research, we constructed an indicator of differentiation by asking consumers to express their perception of “diversity” of each store attributes for each retailer in comparison with its competitors (evaluating each lever on a scale from 1 (same) to 3 (completely different) as shown in Table 4. The percentage of customer ranking the store attributes as “fairly” different or “completely” different is then assumed as “differentiation indicator”.

Table 5 shows that there is great variation in consumers’ perceptions: the most highly differentiated retailer (Retailer W) is perceived as different in store attributes 68 times out of 100, while the least differentiated one (Retailer I) is perceived as different only 20 times out of 100. However, only 5 retailers present an index over 50%.

Table 5. Differentiation indices by retailers

Retailers	**Differentiation index (from 0 to 100%)**
Retailer W	68%
Retailer H	59%
Retailer L	58%
Retailer J	53%
Retailer B	50%
Retailer A	49%
Retailer P	48%
Retailer X	48%
Retailer C	47%
Retailer K	43%
Retailer V	41%
Retailer Y	36%
Retailer M	36%
Retailer G	35%
Retailer N	32%
Retailer S	29%
Retailer O	28%
Retailer F	28%
Retailer D	28%
Retailer I	21%

An interesting result is the relationship between the differentiation index and its variability among retailers. Not all retailers are investing in the same store attributes: among the retailers which are perceived as highly differentiated, there are some which concentrate their efforts on only few store attributes (Figure 1). Some retailers (Retailers L and H), for example, present high differentiation indicators but there is big variation between the differentiation indicators specific to each marketing lever. This means that these retailers differentiate only some of the marketing levers and pay less attention to others. On the other hand others retailers (Retailers W and J), which have higher than average differentiation indicator scores, show little and below average variation between differentiation level of each individual marketing levers.

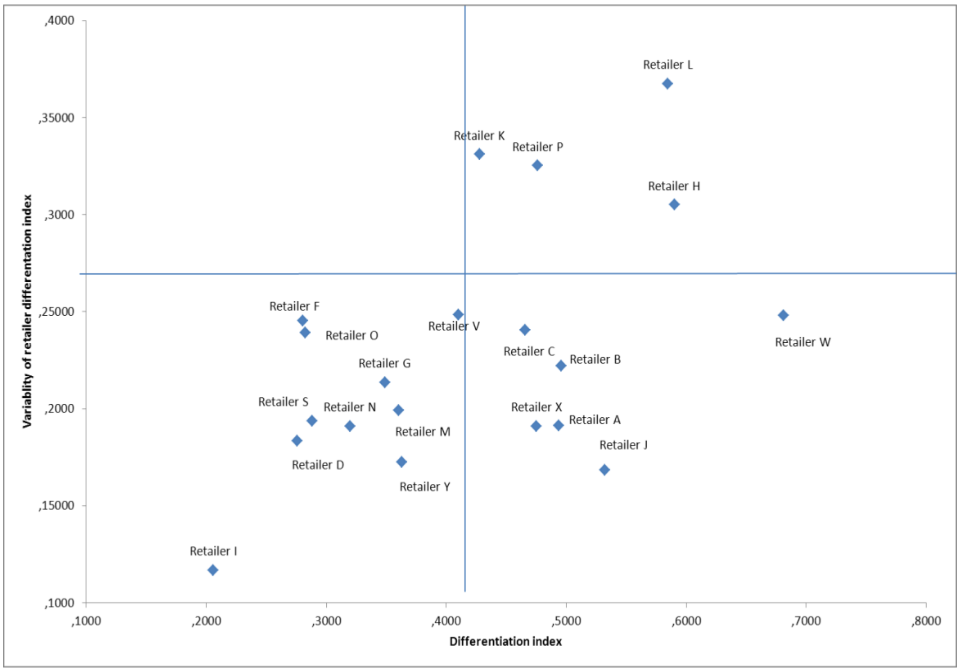

Figure 1. The relationship between average retailer “differentiation index” and its variability

4.4 Store Attributes Driving the Retailers' Differentiation

To answer our last research question (Q4), we have explored the contribution of each marketing levers to the differentiation (Table 6).

Table 6. Differentiation indices by store attributes

Store attributes	**Differentiation index (from 0 to 100%)**
Pricing	73%
Range	69%
Promotions	50%
Ambience	46%
Technology	36%
Communications	36%
Instore marketing	21%
Services	14%

Disaggregating the differentiation index in its components, we find that pricing and range are the main marketing levers to be perceived as “fairly / completely” different between one retailer and another. Tools perceived as not differentiated are technology, communications, in-store marketing and services.

Finally, exploring the relationship between the differentiation index and its variability among retail mix levers (Figure 2), we find that range and pricing show the highest differentiation indicators and also the lowest variation between retailers. This means that all retailers are concentrating on differentiating range and pricing, while others important store attributes, such as in store marketing or services (considered important by focus groups participants) are not managed.

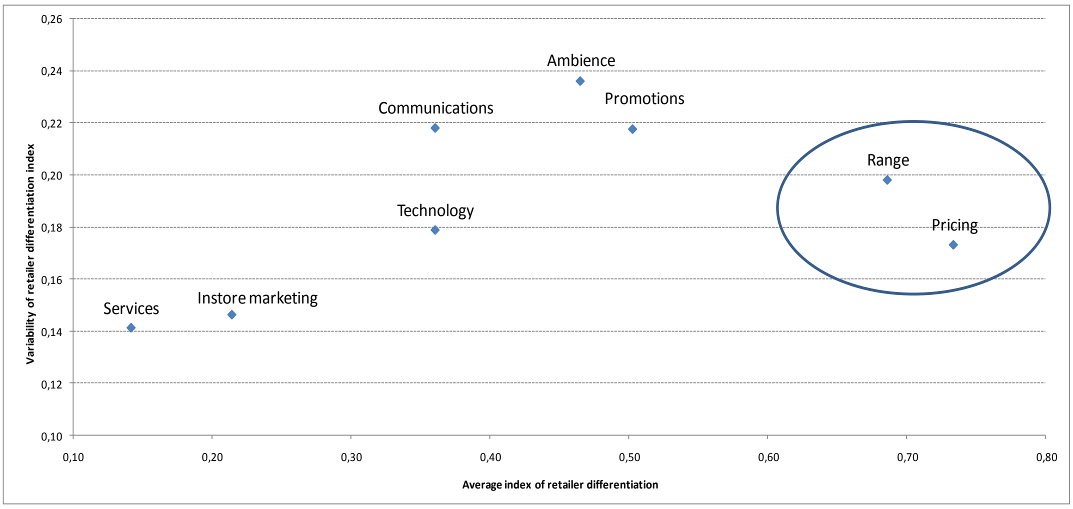

Figure 2. Relationship between average differentiation and variability indices

5. Conclusions and Implications

Increasing competition in the Italian grocery market is pressing retailers to search for new ways to differentiate themselves and gain a better competitive position in the mind of consumers. Gaining competitive advantage in retailing requires a deep knowledge of the attributes consumers use to evaluate stores and a proper understanding of why these attributes are important (Mitchell & Kiral, 1998). Although there is a considerable body of literature about store choice and store image, changes in retail landscape make the pattern of store choice more complex than in the past and the previous assumptions no longer applicable to the Italian context.

Our work provides grocery retailers a specific knowledge of the attributes that consumers consider to be most important when choosing where to shop. In particular, we have explored consumers' perception of grocery retailers in order to understand which are the shopping needs consumers want to satisfied when they choose a grocery store and which store attributes consumers perceive different between retail store formats and between grocery retailers.

Our findings show an increasing similarity both among retail store formats than among grocery retailers. According to the focus groups' analysis, consumers perceive a growing similarity between retail store formats: even if they recognize that some store attributes vary among retail store formats, depending on the size or range, they do not perceive significant differences in terms of meeting their shopping needs.

The shopping needs - time-saving, quality of shopping experience, money saving and trust – could be satisfied by more than one store format. Specifically, the need to "save time" could be met by small retail store formats, such as convenience store or small supermarket, but also by the hypermarket if it has developed some "in-store" services such as self-scanning or fast check-outs. At the same time, the need to "save money" could be satisfied by the discount stores, given its every-day low prices policy, but also by the supermarket if it offers a range of value references or develops aggressive promotion pricing policies. Finally, the need for "quality" and "trust" could be satisfied by all the retail store formats, even the discount thanks to its upgrading. The increasing convergence among retail store formats affects consumers' decision-making on purchasing. Since retail store formats are getting similar in satisfying shopping needs, consumers first choose the retailer and later the retail store format within the retailer portfolio. In other words, consumers chose the retail grocery store regardless of the store formats.

In such scenario, store image becomes an important asset for store choice and store patronage. In the literature, store image has been studied as an important antecedent of store preference (Thang & Tan, 2003), consumer satisfaction (Martenson, 2007), the frequency of store visits (Pan & Zinkhan, 2006), shopping trips, shopping expenditure and store loyalty (Arnold et al., 1983). Our research highlights the importance of the store image as a driver of differentiation strategies, as well as an important means of managing store positioning.

As supported by the literature (Birtwistle et al., 1999, Uusitalo O., 2001), a proper understanding of the store image can help retailers in store differentiation strategies. However, according to our findings, Italian retailers do not show the degree of differentiation perceived that we would have expected: retailers are not yet perceived so much differentiated as they should be in order to be recognized by consumers as distinctive. Our research, in fact, shows that retailers are actively operating only few retail levers: range and pricing.

If retailers want to gain customer preferences in a context of competitive convergence, they need to be aware that consumers' choice of grocery retail stores is changed. Answering to shopping needs levering range and price is not enough. To gain a better competitive position in the minds of consumers, retailers should manage also the other retail levers: in store marketing, services and technology.

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The Effects of the Threats on the Auditor's Independence

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Abstract

This study aims at identifying the effects of threats on the auditor's independence of mind and appearance.

Descriptive statistics measurements and analytical statistics (Paired samples test and one Way ANOVA test) are used to analyze the responses of 65 respondents from Jordanian auditors, and to test the hypotheses of the study. They represent 37 % of auditors who registered in 189 Auditing firms in Jordan.

The researcher found that threats (Self-interest threats, Self-review threats, Advocacy threats, Familiarity or intimacy threats, and Intimidation threats) affect the auditor's independence of mind and appearance, and the variables of speciality and experience don't have an effect in the auditor's awareness of the importance of the effects of threats on his independence.

The study recommends that auditors should know the effects of threats on auditor's independence, and should abide with the rules of professional behavior, and exercise the suitable defensive procedures against these threats.

Keywords: independence of mind, independence in appearance, self-interest threats, self-review threats, advocacy threats, familiarity or intimacy threats, and intimidation threats

1. Introduction

An external auditor faces many threats that may affect his independence. If his independence is affected, he becomes unable to issue a fair report showing the extent of the financial statements' justice which was audited in accordance with the requirements of related international auditing standards. His career will be affected, the acceptance to deal with him in the future will be decreased by clients, and the trust in the audited financial statements will be weakened by users. Reviewing non-auditing services also affect the independence of the auditor. Now, many countries have issued regulations prohibiting the auditor to review the non-auditing services, such as the Sarbanes-Oxley Act of 2002 legislation, that have been issued after the confidence in the auditing profession in the United States was shaken when the Enron Company Failed and its auditor Anderson's company failed to discover that.

There are many studies test the factors that affect the auditor's independence. This study tries to test the effects of threats on the auditor's independence.

1.1 The Problem of the Study

Independence represents the base that helps the auditor in issuing his opinion without any interference in his judgment, on the financial statements of an entity which he audits, but if there are many threats that affect the independence of the auditor, can he issue his fair judgment?

1.2 The Objectives and the Importance of the Study

The study aims at identifying the extent of the threats' impact on the auditor's independence. The importance of this study comes from that it tries to highlight the role of threats in weakening the independence of the auditor.

1.3 Hypotheses

H1: There are no effects of threats on the auditor's independence of mind.

H2: There are no effects of threats on the auditor's independence in appearance.

H3: There are no effects of the auditors' demographic characteristics (speciality, experience) on their awareness of the effect of the threats on the auditor's independence.

2. Literature and Preceding Studies

Independence is the base of the auditing process because it helps the auditor to express his impartial opinion regarding the financial data in his report, without any effects of the threats on his judgment, Independence (of mind and appearance) means that the auditor should do his duty with honesty, faithfulness and impartialities (Abdullah, 2004) in the planning, testing of data, evaluating the results, and preparing his report (Arens et al., 2008). It means that the auditor is committed towards all users of his report (Al Halabi, 2006). Independence and neutrality of the auditor are the important factors that cause the reliability and the credibility of the financial statement (Abu Shook, 2010; and Abu Ganem, 2003). The auditor's independence also influences by applying the auditing standards, the quality control, the pressure of management, providing non-audit services, the auditors' experiences, fees, using the unemployed power, collecting new data for the client activities (Ashbaugh, 2004), and in discovering the financial travesties early. Before these threats affect the independence, the auditor should take the suitable defending procedures (Umar & Anandarajan, 2004). The auditor should not do any service without client order, and if he agrees to do that, he should choose a qualified assistant to achieve that.

The auditor's independence also affects the applying of auditing standards, the quality controlling, the management pressure, and providing non-audit services (Adam, 2014; Al Momani, 2004; El- dalahmeh, 2006; Al Kasharmh, 2003; Hamid & Al Angari, 2007; Kubr, 2002; and Beattie & Fearnley, 2002). The independence of the auditor increases by his speciality, his experience, the efficiency of the internal auditing (Ahmmad, 2003; Kock et al., 2011).

Independence of mind means that the auditor has to express his opinion on the financial statements without being influenced by any threat from any source, and independence in appearance means the ability of the auditor to avoid circumstances or facts which, if known by a third party, they would change their opinion in the integrity, objectivity and impartiality of the auditor (Thunaibat, 2015; Ye et al., 2011; and Mills et al., 2012).

The threats affecting the auditor independence may be classified into:

2.1 Self- Interest Threats

These threats occur when the auditor has material or non material interests with the client. These threats have effect on the auditor's independence. They include the benefits of his family with the client, the dependence on fees from only one client, the anxiety of losing the client, lending loans or receiving loans from the client, and conditional fees (Al Makademh, 2006; ICAIW & Kaplan, 2004). The auditor should balance the benefits and threats when he provides non- auditing services to a client (Schmidt, 2012). The fees volume is the largest threats to the auditor's independence. The new auditor in his beginning work agrees to receive low fees, and then he starts to increase them. In 2001, the Association of Jordanian Auditors specified low fees for the auditing process, but it did not track the applying of that (Sendah, 2007). This gives the auditor the opportunity to determine his remuneration (Siam, 2003).

Management is responsible for the preparation of financial reports, any misstatements or failure shows effect on the dignity of the auditor from the users of financial statements, and they doubt his ability to discover the fraud management. But when there is a strong institutional control, the auditor will reduce the impact of conflicts of interest that affects his independence (Hanini, 2004). If there are no committees auditing which is responsible for the appointment of the auditor or have a weak role, this will increase the effects of the threats on the auditor's independence (Suweti, 2006; and Abu Bakar et al., 2009).

The legislation is the key element in any society because it prevents members from encroaching justice, which affects negatively the independence of the auditor (Abu Leil, 2007). But this legislation may be exaggerative and may lead to discontent. This is experienced by the laws in the Jordanian environment, such as in determining the auditor's fees and does not fit with the nature of the responsibilities arising from it. This has negative effects on independence (Al-Khadash & Al-Sartawi, 2010).

2.2 Self-Review Threats

These threats arise when the auditor accepts to audit tasks that he contributed in achieving and a previous opinion was issued on them. They include also that the auditor or his assistant become a worker at the company of the client, and in a position that helps him to influence the audit process significantly, or he or his assistant prepare a basic data which is used in preparing the financial statements or in the auditing function (ICAIW).

2.3 Advocacy Threats

These threats arise when the auditor supports the client in his practices and in his views, or promotes his shares or defend him in court cases, or intervene to support the client position in any facing with others.

2.4 Familiarity or Intimacy Threats

An auditor may work with client for a long time, this assists in increasing the auditor's knowledge about the client's activities. However, this may strengthen the relationship between them, the nepotism, favoritism, and competition among auditing firms (Sufyan & Bishtawi, 2003). The length period of service affects the independence of the auditor and changing him will raise the cost and reduce the auditor's experience (Titus et al., 2014).

2.5 Intimidation Threats

The client may threaten the auditor with canceling the contract between them in order to reduce his fees; this may reduce the objectivity of the auditor (Nasution, 2013). To reduce such threats, auditing committees should appoint the auditor and determine his fees (Eden et al., 2003; and Kahle et al., 2003).

3. The Methodology of the Study

The study is based on a descriptive approach, in which the survey is conducted for preceding related studies. The study also depended on analytical methods, through a questionnaire which is developed for the same purpose and aims at testing the study's hypotheses.

3.1 Society and the Sample of the Study

The study population consisted of all auditors who are registered in 189 audit firms in Jordan. The sample represents 37% of the auditing firms, and because each office includes a group of auditors, each one received only one questionnaire. (69) Questionnaires were collected from the distributed (70); (65) of them are valid for the purposes of the study, which represents 93% of the distributed questionnaires

3.2 The Study Tool and the Variables

After reviewing the preceding studies which are relating to the auditor's independence and those are relating to threats that affect independence, a questionnaire is developed to test the study hypotheses. It consists of three parts. The first part includes Phrases measuring the personal characteristics (Speciality, and experience) of the auditors, and the second part contains (22) Phrases measuring the variables of the study. Phrases (1-7) measuring the variable "threats of personal interests"; Phrases (8-11) measuring the variable "threats of self-review"; Phrases (12-13) measuring the variable "threats of advocacy t"; Phrases (14-17) measuring "threats of familiarity"; Phrases (18-20) measuring the variable "threats of intimidation". The researcher used the Likert scale to determine the weights of the Phrases of the questionnaire that measure the threats as follows: strongly disagree, was given one degree, disagree, was give two degrees, neutral, was given three degrees, agree, was given four degrees, strongly agree, was given five degrees. Phrase (21) measures the independence of mind, the auditor may not be neutral (was given one degree), or neutral, (was given two degrees). Phrase (22) measures the independence in appearance, the auditor may not avoid events that cast doubt on his findings (was given one degree), or may be able to avoid such circumstances and was given two degrees (See Appendix).

3.3 Validity and Reliability of the Questionnaire

The questionnaire is displayed on (3) arbitrators of accounting professors in Jordanian universities, and modified at their directions, and the stability of the questionnaire was tested depending on the Cronbach's alpha scale. The reliability coefficient is found (0.911).

3.4 Statistical Methods

The researcher used the following statistical methods in his study: descriptive statistics measurements depending on the statistical package (SPSS) to describe auditors characteristics; and Paired samples test to determine the differences between each threat and the independence of mind and in appearance; and One Way ANOVA to identify statistically significant differences in the awareness of auditors to the impact of threats on independence, which can be attributed to the variables speciality and experience.

4. Results and Discussions

4.1 The Characteristics of the Study Population

Table 1. Demographic characteristics statistics

	Frequency	Percent	Cumulative Percent
Speciality			
Accounting	45	69.2 %	69.20 %
Others	20	30.8 %	100.0 %
Experience			
From 1-5 years	8	12.3 %	12.30 %
From 6- 10 years	19	29.2 %	41.50 %
From 11- 15 years	26	40.0 %	81.50 %
More than 15 years	12	18.5 %	100.0 %

Table 1 shows that the 69.20% of the auditors have B.A in Accounting, and this means that a large proportion of them is aware of the impact of threats to the independence of the auditor. 58.50% of them have an experience of more than ten years, and this means that they practiced auditing and helped them in understanding the effects of threats on reducing the auditor’s independence.

4.2 Analysis Methods

To test the first and the second hypotheses, Paired Sample Test is used as in Tables 2 and 3.

Table 2. Paired samples test

		Mean	Std.	Computed t	Tabulated t	D.F	Sig
Pair 1	q21- Ts1	- 1.169	1.170	- 8.056	1.998	64	0.000
	q21-Ts2	- 1.346	1.125	-9.649	1.998	64	0.000
	q21-Ts3	- 1.038	1.069	-7.831	1.988	64	0.000
	q21-Ts4	- 1.277	1.390	-7.396	1.988	64	0.000
	q21-Ts5	- 1.193	1.261	-7.620	1.988	64	0.000
Pair 2	q22-Ts1	- 1.077	1.245	-6.997	1.988	64	0.000
	q22-Ts2	- 1.254	1.209	-8.361	1.988	64	0.000
	q22-Ts3	- 0.940	1.097	-6.952	1.988	64	0.000
	q22-Ts4	- 1.185	1.420	-6.707	1.988	64	0.000
	q22-Ts5	- 1.100	1.332	-6.657	1.988	64	0.000

Table 2 shows that the computed absolute values of (t) are larger than the tabulated values of them, at confidence level (0.05) when the degree values are (64) after using the pair samples test between each threat (Ts1, Ts2, Ts3, Ts4, and Ts 5) and the independence of mind (q21) and the independence in appearance (q22), this means that these threats affected the auditor’s independence (of mind and in appearance). This result is the answer of the study’s question “If there are many threats affecting the independence of the auditor, can he issue his fair judgment?”

Table 3. Paired samples test

		Mean	Std.	Computed t	Tabulated t	df	Sig
Pair 1	q21- m	-1.123	1.183	- 7.656	1.998	64	0.000
Pair 2	q22- m	- 1.031	1.234	- 8.056	1.988	64	0.000

And to test the third hypothesis', One Way ANOVA test is used as in Table 4.

Table 4. ANOVA

D. C	S.S	df	M.S	C. F	T.F	Sig.
Speciality	0.018	(1,63)	0.018	0.015	3.996	0.907
Experience	2.304	(3, 61)	0.768	0.550	2.76	0.586

4.3 Hypotheses Testing

H1: The threats do not affect the auditor's independence of mind.

Table 3 shows that the absolute value of calculated t (8.056) is larger than its tabulated value (1.988), when the degrees of freedom (64), at a confidence level (0.05), so that this hypothesis is rejected. This means that threats affected the auditor's independence of mind.

H2: The threats do not affect the auditor's independence in appearance.

Table 3 shows that the absolute value of calculated t (7.656) is larger than its tabulated value (1.988), when the degrees of freedom (64), at a confidence level (0.05), so that this hypothesis is rejected. This means that threats affected the auditor's independence in appearance.

H3: The demographic characteristics of the auditors (speciality, and experience) do not affect their awareness of the impact of the threats on their independence.

Table 4 shows that the values of calculated F for the variables of speciality and experience are less than their tabulated values, at a confidence (0.05). Therefore the hypothesis is accepted. This means that the variables of speciality and experience didn't affect their awareness of the impact of the threats on the auditor's independence.

5. Conclusion and Recommendations

From the above we can conduct that the threats have a negative effect on the auditor's independence. This result is consistent with the results of Nasution study (2013) and with the results of many studies testing the factors that affect independence, as in Abu Shook study (2010), Al-Otaibi study (2009), Kubr study (2002), and the study of Beattie and Fearnley (2003).

Speciality and experience of the auditor didn't affect his awareness to the impact of the threats on the independence.

The auditors' independence is affected by the self-review treats (ICAIW), advocacy threats, familiarity or intimacy threats (see Sufyan & Bishtawi, 2003; and Titus et al., 2014).

The auditor should reduce the degree of the threats that affect his independence when he provides non- auditing services by using the mechanisms of advocacy. The large threats that affect the auditor's independence are: the fees' amount, who determines fees, and the conditional fees (see Al Makademh, 2006).

Management is responsible for preparation of the financial statements. Any financial mistakes or travesties affect the credibility of the auditor from the users' perspective because they believe that the auditor doesn't have the ability to discover management's skullduggery, and this may threaten his independence. But when the company has institutional strong control, this will help the auditor in reducing the impact of the conflicts of interests in independence (see Hanini, 2005).

Independence is strengthened by the audit committees (Abu Bakar et al., 2009; and Suweti, 2006), and by respecting legislations (Abu Leil, 2007).

The study recommends auditors to recognize threats and their impact on independence, and abide by the rules of professional behavior and hedge against these threats by taking defensive procedures which are consistent with each threat.

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Appendix

Questionnaire

Dear

Best greeting

Please fill the questionnaire, the data will be treated secretly.

Part one: Demographic characteristics

Put (x) on the suitable choice

Speciality

(1)Accounting (2) others

Experience

(1)Less than 5 years (3) from 11 to 15 years

(2) From 5 to 10 years (4) more than 15 years

Part Two: please put (x) on the suitable choice for you

phrases	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
1. There aren't a material interests directly and indirectly with the client.					
2. I don't rely heavily on client fees.					
3. I have not concern that I will lose the client.					
4. I don't custom to lend client or borrow from him.					
5. The client doesn't provide me guarantees when I need or I give him					
6. There is no one of my family works at the client's enterprise					
7. There is a low probability to become an officer in the client enterprise.					
8. There was no member of my working group worked with my client previously is chosen now to achieve the same task for the client.					
9. One of the team become an officer in the client enterprise, I expect that he has an impact on the results of the audit.					
10. I provide service to the client, and I expect it will affect the audit process currently or in the future					
11. I prepared the basic data for the client that used in the preparation of financial statements, and I expect it will affect the audit process.					
12. I do not promote the shares of the client and his ideas					
13. I don't advocacy the client in the cases against him, or I interfere in conflict with him.					
14. I become a member of the working group doesn't have a family relationship with the client, and I expect this affect the audit process.					
15. One of the team become an officer in the client enterprise and has the ability to influence the results of the audit process.					
16. I worked along period with my client.					
17. I don't accept gifts from the client, because they affect on results of the audit.					
18. My client threatens me sometimes in canceling the contract with him.					
19. The client is trying to put pressure on in order to reduce fees.					
20. Client exercises control					
21. I don't partialities to any one from the users of the audit report.					
22. I avoid the circumstances and events that may cause the doubt in the audit report from the users of this report					

Part three: please put (x) on the suitable choice for you

Phrase	neutral	Un neutral
21. I don't partialities to any one from the users of the audit report.		
Phrase	Don't avoid events affect the auditor's independence	Avoid events affect the auditor's independence
22. I avoid the circumstances and events that may cause the doubt in the audit report from the users of this report		

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Optimizing Digital Marketing for Generation Y: An Investigation of Developing Online Market in Bangladesh

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Abstract

This market research aims to investigate the digital information scanning and the internet using habit of Generation Y in Bangladesh, a rapidly developing e-commerce market. It also examines the key variables to optimize digital advertisement for the target group. The study segments Gen Y into two age groups, 18-25 who are students and between 26-35 years who are working, in order to explore the transformation in online consumer behaviour. Most data have been presented according to the segments and gender. The analysis in this study is based on 305 face to face surveys during April-June 2015 using structured questionnaires. This research found that Gen Y with internet access living in the capital of Bangladesh has similar traits as found in many researches focused on developed online market. Facebook is their primary source of information and they have moved away from watching TV. But they are still exposed to the traditional advertisements through billboards and other non-digital media. They are mostly active online on Facebook, Google and YouTube from 5PM to 2AM. This information, along with other findings in this research, provides rich data for advanced targeting variable in Google AdWords and Facebook Advertising. Pop-up ad is the least liked feature by Gen Y. They prefer innovative and interactive ads displaying new product information. They also tend to click on online ads showing discount coupons and similar offers. Ads representing social benefits motivate Gen Y. This study sets a benchmark as it is the first of its kind in the context of Bangladesh. Thus it can be used as the foundation of a longitudinal study on the topic.

Keywords: E-commerce, marketing strategy, online consumer behaviour, generation Y, online marketing, digital marketing, internet marketing

1. Introduction

E-commerce in Bangladesh is observing rapid growth and medium to large size organizations have started to invest in online marketing. Latest Internet World Stats (2015) of Bangladesh presents that 26.4% of the population already have access to internet as of 14 June 2015 and Facebook.com tops the list of most accessed online service (Alexa, 2015). Bangladesh has a young population and the recent study by Rahman (2015) examined the expectations of Generation Y (Gen Y) from online retailers in Bangladesh. The findings of that research provide a direction to the market to invest in online retail ventures which are in demand by the target group i.e. Gen Y. As more consumers are going online, the marketing strategists should feel the importance of reaching the target group in the most efficient way. As a result the need for digital advertisement is growing in parallel with the growth of e-commerce. Studies to assist such market transformation is available for developed market (Chan-Olmsted, Rim, & Zerba, 2013; Lewis, 2008) but there is a gap in market research to investigate the consumer behaviour in developing market such as Bangladesh. An investigation of current online information scanning habit of Gen Y is required to understand their digital activities. The outcome can set a benchmark for the digital marketers in Bangladesh and a longitudinal study (Note 1) similar to the work of Taken Smith (2012) can be the next step to observe the transformation in online consumer behaviour.

The purpose of this study is to investigate how different segments of Gen Y in Bangladesh utilize the source of digital information. The objectives of this study are to:

1) Investigate the digital information scanning habit of Gen Y.

2) Investigate the internet using habit of Gen Y.

3) Investigate key variables to optimize digital advertisement targeting Gen Y.

This article starts with a brief literature review on Gen Y consumer behaviour. The methodology section explains the process of developing questionnaire and data collection. The findings of the survey are presented in the following section. Lastly a detailed examination of the results followed by practical implications and further research recommendations is provided.

2. Literature Review

Gen Y consumer behaviour is an extensively researched area. Black (2010) investigated the learning habit of group of US college students to prepare the faculties better so that they can meet the demand of the generation. Gen Y's dependence on technology was highlighted as the most important outcome of that research and the author characterised Gen Y as 'Digital Natives'. This term was first used by Marc Prensky (2001) to recommend a radical change in US education delivery system. The term *native* represents the native language that we speak, the way we think and the cultural armour that we inherit. Gen Y inherited a world triumphing digital technology. They have seen the birth and aided the rapid growth of applications and devices such as Facebook, iPhone and Cloud computing which reshaped the way we do our work today. Comparing Bangladesh with US or Australia, a rapidly developing digital market vs. a highly developed region, the example is in front of us and the need for understanding the ways to deliver information to Gen Y in Bangladesh is immense.

Understanding the information delivery channel is not only important for socio-cultural and globalization reasons but also for the commercial purpose. Internet penetration from mobile devices is increasing in Bangladesh and the lowering internet bandwidth and device cost is the key reason driving the change (Rahman, 2015; Taher, 2015). Also recent affiliation between local telecommunication organization Grameenphone (GP) and the world's largest NGO BRAC to provide smart mobile handset with internet access for a year may have a strong impact on the digital media access from rural areas in Bangladesh (Grameenphone, 2015a, 2015b). Closing the gap of internet availability between the urban and rural demographics of Bangladesh will complement the already praiseworthy digital growth in the country over the past five years. Digital access to more consumer base will create opportunities to increase advertisement reach rapidly. Digital media attracts consumer due to its interactive nature which also help the brands to visualize consumer preferences. Flow of such data should help brands to co-create products and services which is one of the key value that attracts Gen-Y (De Vries & Carlson, 2014; Rahman, 2015).

In 2014, neighbouring country India, with similar demographics and growing e-commerce market as Bangladesh, spent $740 million on digital ad out of $6.1 billion in total advertisement expenditure (eMarketer, 2015). There are two primary mediums of online advertisements; first is the search engine and second is the social media. Social media such as Facebook is not only a mass social communication media but also one of the largest digital marketing platforms. In developed US market, on an average, an adult uses 6% (21 minutes) of their daily time on Facebook (eMarketer, 2014); viewing advertisements (*sponsored post*) and posts by preferred brand's Facebook pages (*BFP post feed*) are part of this mix. In that mix of adult users, 26.2 million (16.7%) are in the age group of 18-24 and 32.1 million (20.5%) are in 25-35, which comprises Gen Y population segment (AdWeek, 2015). It is evident from the data that Gen Y is exposed to advertisement delivered through Facebook i.e. social media in developed e-market and presumably similar trend will be observed in Bangladesh as the access to digital media grows. Interestingly social media advertisement is relatively new considering Google's online advertising platform 'AdWords' was launched in 2000 (Google, 2014). Google has enjoyed a 19% year-over-year profit rise in year 2013-2014 and much of it is contributed by the increased paid advertisement (21% rise in AdWords revenue) (Dent, 2014). Growth of e-commerce in developing market as well as increased advertisement in developed market is helping Google to grow. From the advertisers' perspective, knowing the best way of AdWord's ROI (Note 2) is the key concern (Dent, 2014; Stelzner, 2015), which includes knowing the internet behaviour of the target consumer group.

The preference of digital advertisement varies between different demographics. A New York based research in 2010 found that leader boards, blogs, videos and brand pages are preferred by the respondents, and Pop-ups, expandable and floating ads have perceived negative attributes (Cox, 2010). The study also found that the age group of 18-28 (Gen Y at the time of this research) is not too concerned about the placement of the ad on a site but the same attribute is important to 35-54 age groups. Another earlier US study found that average people use four different media such as online news portal, Word of Mouth (WoM (Note 3)), Television, Facebook, Twitter, YouTube, LinkedIn to receive news (Lewis, 2008). The findings of that research highlighted the falling of online news reader in the age group of 18-29 as alarming. The alarm was raised mainly because the young group of online population was moving away from the news portals to the websites and services which are not primarily news oriented. The researcher described the situation as 'Odd' and recommended regular evaluation of the internet habit of Gen Y.

Theory of Uses and Gratification is widely used in social media research and to identify the motivational factors to reach and influence Gen Y digitally (De Vries & Carlson, 2014; Lewis, 2008; Lichy, 2012). As researchers found that Gen Y is moving away from the mainstream media to much newer and interactive media, most of the time they are entering those media with perceived functional and hedonic value. Evaluating some of those values to attract Gen Y, researchers recommended to make digital content interesting and to set strategies to deliver content at the right moment to the right target to fulfill the functional value that they are seeking from digital media (Sharma, 2011). Sharma (2011) also highlighted the wrongdoings of the management by distributing digital content anytime. For example, Facebook wall is updated frequently to present latest information, Twitter is designed to have lots of frequent update and people use their smartphones to receive news while they are stuck in traffic during peak hours. Misunderstanding the digital media and misuse of digital advertisement delivery mechanisms can deprive consumers from the value that they seek online. Thus it is important for the brands to understand the digital eco system of their target market.

3. Methodology

3.1 Study Design

The target group of this research is between the age of 20 and 35 years. Not everyone within Gen Y has the same earning and also their need for digital media access is different. Thus it is obvious to expect differences between different age segments depending on the highest level of education, gender, work status and lifestyle (Bakewell & Mitchell, 2003; Noble, Haytko, & Phillips, 2009). Young university students and graduates within the age limit of 20 to 25 years are part of Gen Y and they have been segmented as students with no or limited income source. The second segment of the target group is in between the age of 26 to 35 years who are employed or unemployed after completing their graduation from the university. This age group is regularly utilized by researchers and corporations to develop product in a consumer controlled market (Chu & Choi, 2011; Mangold & Faulds, 2009). Self-administered paper-and-pencil intercept survey deemed appropriate for the purpose of this research as the target group is young adults (De Vries & Carlson, 2014). Similar to recent Gen Y study by Rahman (2015), final year students at BRAC University volunteered for the survey. Initial screening found their birth year is between 1991 and 1994. This age cluster of 21-24 years (middle aged Gen-Y) are students with no or part-time jobs. The same group of volunteers assisted to collect self-administrated survey from their elder family members and friends born between 1980 and 1995. They are 25 to 35 years old and most of them are working full time or engaged in business activities. All volunteers have good English reading and writing skill to administer a survey.

This research aims to map the digital information scanning habit of the target group; thus most questions were prepared to be suitable for statistical analysis using SPSS version 17. The survey questionnaire had 43 questions to capture the behavioural data of respondents' search engine use, exposure level to digital advertisement, understanding of online advertisement, television watching habit and most of all–the time of the day and night when they are active online. Current concerns of digital marketers such as 'how to find target audience', 'how to deliver advertisement more efficiently' (Stelzner, 2015), 'effectiveness of online advertisements' (Criteo, 2015) were in mind while preparing the questions. There were four open ended questions to learn about their reason of why they have stopped visiting a website that they used to visit, their general dislikes of frequently accessed websites and their preferred online advertisement methods. Few questions were prepared following Likert scale to understand respondent's attitude. Most of such questions had five response options (Never–Always) and few had three response options (not at all, occasionally and frequently). All volunteers received adequate information on each topic so that any question from the participant can be answered. The survey also included questions about their general view on online shopping in Bangladesh. Preparation for this research started in late- 2014 and data collection was conducted in the months of May and June, 2015.

3.2 Sample Profile

In total, 317 completed surveys were collected and 305 were usable for data entry after initial screening. Of this sample, 164 are in the age group of 20-25 with 89 male and 75 female. 137 of them are currently studying at private universities, 16 of them works part time while continuing their study at the university and 7 working full-time after completing graduation recently. 141 respondents are from the age group of 26-35 with 88 males and 53 females. Only 12 of them are still at the final year of their graduation at the university, 101 respondents are working full-time and 22 are unemployed. In total, 49.2% student, 35.4% full-time employee, 7.5% unemployed, 5.6% student with part-time work and 1.3% full-time work with part-time study. Out of 305 respondents, 2 respondents completed their PhD, 27.2% completed master's degree, 23.3% completed their bachelor degree, 46.6% are final year university student and 2.3% completed up to HSC level. The overall male and female ratio in the data is 164:141 which should represent an unbiased analysis.

4. Results and Discussions

4.1 Usage of News Media by Gen Y

Digital and non-digital media have been considered to identify the channels that Gen Y uses to receive news. Internet and telecast have been considered as digital channel. Face to face conversations and printed newspaper have been considered as non-digital media. Respondents (*N=305*) were asked one question to select their primary source of information and frequency analysis in table 1 shows difference based on age group. The observation in table 1 shows that Gen Y uses Social Media platform Facebook as the primary source of news. Stronger tendency in seen in the 18-25 age groups than 26-35. Female in all age groups use Facebook more as a news source than men, which supports the findings of a recent Malaysian study with similar setup (Zaremohzzabieh, Samah, Omar, Bolong, & Kamarudin, 2014).

Table 1. Gen Y news channels

Information channel	Age group 18-25		Age group 26-35	
	Male (%)	Female (%)	Male (%)	Female (%)
Total N = 305	*N=89*	*N=75*	*N=88*	*N=53*
Printed new paper (Offline)	11.3	3.1	11.3	7.8
Television	1.7	7.0	6.8	7.8
Facebook (Social Media)	20.9	35.2	11.3	14.1
Chat with friends (WoM)	1.7	1.6	1.1	0.8
Online news portals	13.6	10.9	18.1	9.4

Having chat with friends is the least used media to receive information across all age groups and gender. This is not surprising as Gen Y is meeting more friends online than offline; they are virtually connected. Online news portals still attract reasonable percentages of Gen Y for their daily news feed. Conversation with the respondents revealed that the feed from the news portals on their Facebook wall is the way to connect to those online services. Having feed in the Facebook saves them from going to an external site. Many telco provides free access to Facebook from mobile connections, thus Facebook is their only option to receive updated news while on mobile without Wi-Fi internet connection. Offline printed newspaper is still preferred by almost the same amount of respondents who receive information from online news portals with the exception of female in 18-25 age group. Facebook is the most preferred news channel (35%) to that segment by far compared to 3% who reads printed newspaper.

Differences in TV viewing habit is noticeable as only 1.7% male in the 18-25 age group watch TV and consider it as a news source. Four more questions were asked to the respondents to better understand their TV watching habit. The analysis shows that most respondents occasionally watch TV but local Bangladeshi channels are not popular among any target segment. Table 2 shows that most male prefers to watch foreign English channels, most female prefers Indian Hindi channels and Bangladeshi channels are watched by merely 15% respondent.

Table 2. TV watching habit

	Do not watch TV	Foreign English Channel	Indian Hindi	Bangladeshi Channel
Total N=305	*N=35*	*N=162*	*N=60*	*N=48*
Male	7.2%	35.1%	3.9%	11.8%
Female	4.3%	4.3%	15.6%	3.9%

305 respondents also informed their preferred time to watch TV and there is no significant difference between the age groups, gender and types of days i.e. weekday vs. weekends. Most people watch TV in between 10PM to

2AM (weekday, weekend = 48%, 39%). The second peak period is from 5PM to 10PM (weekday, weekend = 38%, 38%). Off-peak period is 2AM to 8AM (weekday, weekend = 2.6%, 4.3%). The interviewers asked predesigned open ended question to learn more about TV habit. It was found that most respondents with good internet connection at home do not feel the need for exclusive TV watching time. They still prefer to watch videos but they preferred watching YouTube videos in their own domain rather than sharing one TV with other family members and avoid everyone watching the same channels at the same time. Possibly the value of 'self' is dictating their means to fulfil hedonic value.

But a person is exposed to multiple media sources, thus four more questions were asked in Likert scale (never, rarely, sometimes, most of the time, always) to understand the relation between their news seeking habit, gender and age. Following hypotheses were formed to statistically test such relationships:

H_{1a} = Likelihood to read printed newspaper do not vary between gender

H_{1b} = Likelihood to read printed newspaper do not vary between Gen Y age group

H_{2a} = Likelihood to visit online news portals do not vary between gender

H_{2b} = Likelihood to visit online news portals do not vary between Gen Y age group

H_{3a} = Likelihood to watch TV do not vary between gender

H_{3b} = Likelihood to watch TV do not vary between Gen Y age group

H_{4a} = Likelihood to observe billboards do not vary between gender

H_{4b} = Likelihood to observe billboards do not vary between Gen Y age group

Chi-square test of independence using SPSS was used to test association between variables in each of these hypotheses. At t_{305}, P-value of 0.488 (x^2_5 = 4.441, p>0.05) fails to reject H_{1a}, indicating no relation between gender and printed newspaper reading preference. But P-value of 0.031 (x^2_4 = 10.632, p<0.05) for H_{2a} test reflects strong relationship (Cramer's V value of 0.187 which is > 0.15) between gender and online newspaper reading habit. Similarly, test for H_{3a} found strong relationship (Cramer's V value of 0.266 which is > 0.25 for P-value of 0.000 with x^2_3 = 21.604 at t_{305}) between gender and TV viewing habit. Analysis of the data table reveals that most of the male (37%) watch TV occasionally and 16% watch TV frequently. In terms of female, 23% watch frequently and 17% watch occasionally. Comparing with findings in table 2, it can be assumed that most male are frequently watching foreign English movies whereas most female are watching Indian Hindi channels. In terms of looking at billboards besides roads and highways (H_{4a}), there is a strong relationship among gender, specially female, and their habit of receiving information from ads (x^2_5 = 15.649, P-value = 0.008 and Cramer's V=0.227). Similar to gender, Chi-square test was used to examine relation between age group and their news receiving process. Following are the test results for four hypotheses at t_{305}:

H_{1b} = P-value of 0.089 (x^2_5 = 9.537, p>0.05); Cramer's V value of 0.177

H_{2b} = P-value of 0.463 (x^2_4 = 3.598, p>0.05); Cramer's V value of 0.109

H_{3b} = P-value of 0.524 (x^2_5 = 2.240, p>0.05); Cramer's V value of 0.086

H_{4b} = P-value of 0.170 (x^2_5 = 7.759, p>0.05); Cramer's V value of 0.159

All four tests fail to reject the null hypothesis signifying that Gen Y's habit of receiving news from printed newspaper, online newspaper, TV and billboards does not change significantly as they grow older. In summary of these tests, possibly, billboards are effective media for offline advertisements to female; online newspapers are effective for advertisements targeting male. It can also be concluded that advertising on local Bangladeshi TV channels may not be effective if the product is targeted to the demography similar to the respondents in this study. But running video advertisements i.e. TV Commercial (TVC) in YouTube and Facebook at specific times of the day can provide better reach. Some related analysis is available in following sections.

Some outcomes in this analysis indicate that information receiving habit of Gen Y in Bangladesh is not so different from the global trend. Recent research by American Press Institute (2015) found that 18-34 years old US population do not read print media and do not watch TV for news. They spend more time in social media and accept the news that are fed to their apps in mobile devices. These findings do not mean that Gen Y is less exposed to news. On the contrary, they now more open to news channels as they have more options available to them. They customize those channels as per their own liking to create their own news feed. The research also found that news related to social cause attracts Gen Y. This view supports 'Share used mobile device' strategy by BRAC and GP described earlier in the literature review section. A UK based study found that charities are finding it challenging to attract Gen Y using traditional advertising and fund seeking method (Meade, 2014).

Following the findings of this research in Bangladesh and earlier researches on Gen Y, GP should be able to gain the attention of Gen Y by supporting a social cause and BRAC should be able to reach its next generation of donor by partnering with a telco which has higher access to Gen Y due to their high telecom products and services usage habit.

4.2 Internet Using Habit of Gen Y in Bangladesh

The amount of time spent on internet, the types of devices used to surf internet and the peak internet usage time are important information to customize digital advertisement delivery to different age and gender groups. Multiple questions were asked during the survey to map the Internet usage habit of Gen Y. Table 3 shows the amount of time that respondents spend on Internet daily:

Table 3. Gen Y Internet usage in hours

Hours spent on Internet	Age group 18-25		Age group 26-35	
	Male (%)	Female (%)	Male (%)	Female (%)
Total N = 305	*N=89*	*N=75*	*N=88*	*N=53*
1-2 hours (low usage)	8.5	11.7	12.4	15.6
2-5 hours (medium usage)	23.7	23.4	15.8	14.1
5 hours+ (high usage)	18.1	22.7	21.5	11.7

It is not surprising to find that most respondents in the 18-25 age groups are spending at least 2-5 hours on the internet. Chi-square test of H_{5a}, association between gender and internet usage, finds no association between the variables at t_{305} with P-value of 0.348 ($x^2_3 = 9.537$, $p>0.05$). But H_{5b}, relation between Gen Y age group and internet usage, indicates Strong relationship at t_{305} with P-value of 0.05 ($x^2_3 = 7.599$, $p>0.05$) and Cramer's V value of 0.158 (>0.15). It is evident from table 3 that the percentage of low, medium and high usage is almost evenly spread in the age group of 26-35 years, with the exception of that more male (21.5%) are heavy internet users than female (11.7%). The increase in the low usage group is possibly due to the fact that respondents in this group are working full-time or part-time. This finding supports the earlier finding in table 1 that very few female (9.4%) in the age group of 26-35 are reading online newspaper. But their Facebook usage remains reasonably high, meaning this group of female utilizes their internet time mostly on Facebook i.e. Social Media. Heavy usage of internet by working male resonates the US finding where approximately 73% of the employee from the 18-35 age group spend time in non-work related internet browsing (Conner, 2012). The Gen Y employees in that survey mentioned boredom at work as their reason for being inefficient.

Table 4. Primary device for internet access

	Mobile Phone	Laptop	Desktop	Tablet	Both laptop and Mobile
Total N=305	*N=96*	*N=115*	*N=48*	*N=12*	*N=34*
Male	16.1%	23.9%	11.5%	1.0%	5.2%
Female	15.4%	13.8%	4.3%	2.6%	5.9%
Total:	31.5%	37.7%	15.7%	3.6%	11.1%

The study did not observe any significant difference in the types of devices that respondents from different age groups primarily use for internet access. But there are some differences between genders. Table 4 shows that laptops (37.7%) are the primary device for internet access by most of the respondents followed by mobile phones (31.5%). Desktops are preferred by more male than female. Conversation with the male respondents revealed that they use high end desktops to play video games. Tablet is yet to become popular but more female are using tablet than male. Some female respondents started to use tablets due to its lightweight feature. Most respondents prefer mobile phones with larger screen size than tablet because it is easier to enable internet access in mobile phones whereas tablets can access internet with Wi-Fi connection only. One male respondent of final year business degree made a fun out of Maslow's hierarchy of need and wanted to add mobile phone and internet in the list. Perhaps providing free Wi-Fi connection can be a viable strategic decision by businesses if they need to lure Gen Y in their premises.

Respondent's answers to the question of their purpose of internet usage revels that they mostly use internet for following reasons: Facebook i.e. social media–37%, searching on Google–32.5%, academic research–16%, watching video online–7%, reading news–3.9%, play video games–1.3%, official use 1% and online shopping 1%. While shopping or evaluating products online consumers most of the traffic in developed online market (PWC, 2015a, 2015b), Bangladesh is not experiencing that traffic load yet. Table 5 maps the peak and off-peak internet usage time of Gen Y where weekends are Fridays and Saturdays. Not surprisingly most respondents are always online and surfing internet as they require. Respondents in the age group of 18-26 years are not highly active on the internet during standing working hours of 9am to 5pm but they are highly active from 5pm onwards and mostly active late in the night (18.4%). Respondents from the age group of 26-36 years are moderately active on the internet (8.9%) despite their work commitment during 9am to 5pm on the weekdays. Both Google AdWords and Facebook advertisement platform offers targeting option based on time. This time map can be utilized to optimize online advertisement targeting Gen Y in Bangladesh.

Table 5. Gen Y internet browsing time

Information channel	Age group 18-25		Age group 26-35	
	Weekdays (%)	Weekends (%)	Weekdays (%)	Weekends (%)
Total N = 305	*N=164*	*N=164*	*N=141*	*N=141*
Always online	20.0	27.9	22	24.6
8am – 5pm	3.3	4.3	8.9	2.3
5pm – 10 pm	11.8	7.5	6.9	11.1
10pm – 2am	18.4	12.1	7.5	6.2
2am – 8am	0.3	1.3	0.7	1.3

4.3 Advertising to Gen Y in Bangladesh

Taken Smith (2012) conducted a longitudinal study in US from 2009 to 2011 and found that Gen Y is more attracted to advertisement with discount coupons and overwhelmingly hate pop-up ads. It is important to investigate the preference of Gen Y in Bangladesh to deliver advertisements that they prefer. For example, http://www.prothom-alo.com is the highest ranked online news portal in Bangladesh (Alexa, 2015) and often it displays pop-up ads on the homepage. Many respondents in this research directly mentioned their frustration with the pop-up ads on their preferred news media; digital ad channels should pay more attention to the preference of their audience. Few questions were asked in this research to understand their advertisement preference. 34% respondents (N=305) from all segments answered that they 'Sometimes' look at the billboards besides the streets and highways and another 34% said that they notice billboards 'Most of the times'. About 20% population always notice billboards while they are travelling on the road. This result indicates that offline advertisement media such as billboards and banners are still appealing to Gen Y in Bangladesh. There is no significant difference between the billboard viewing preference of male and female.

Table 6. Understanding of digital marketing techniques

	Can differ between paid and unpaid search result on Google/Bing	Can Differ paid and unpaid post or ad on Facebook	Receive SMS advertisement	Developed a skill to skip online advertisement and view desired content only
	N=301	*N=301*	*N=301*	*N=302*
	% Yes	*% Yes*	*% Yes*	*% Yes*
Male	29.5	37.6	38.9	33.8
Female	16.1	23.4	27.6	20.9
Total:	45.6	61.1	66.4	54.6

Table 6 and 7 shows answers to few digital advertisement related questions. These questions were asked to find out the current level of awareness and psychological acceptance of digital advertisement. Recent researches on online advertisement found that the audience have developed a skipping behaviour because the advertisements are always on the same spot on a delivery channel i.e. website, mobile app (Nettelhorst, Jeter, & Brannon, 2014). Table 6 shows that almost 55% respondents have already developed skill to take what they need from a media and avoid looking at unwanted content which do not interest them. SMS advertisement seems popular with the marketers as more than 65% respondents are receiving offers via SMS. 61% respondents can differentiate between organic and paid news feed on Facebook and 45% knows which search results are sponsored by the company itself rather than recommended by Google. These findings indicate relationship between someone's ability to differentiate between paid/unpaid online advertisement and their habit of overlooking ads on websites. Thus a paired t-test was conducted using SPSS for the hypothesis:

H_6 = Mean score of ability to differentiate online ad type and habit of overlooking online ads are the same. The mean difference is zero: $\mu_d = 0$.

Paired Samples test outcome from SPSS provided p=0.097, which is more than 5% significance level of 0.05 at t_{301}. The means for two variables are similar as well ($\mu_d = 0$). Thus statistically there is no significant difference in someone's ability to differentiate between paid/unpaid ads and their habit to skip online ads. Therefore the test fails to reject H_6. The output also shows a positive correlation of 0.113. These findings support the online advertisement skipping habit as found in other researches in developed e-commerce market as explained earlier. Innovative marketing and web design strategies implemented in such markets to engage consumers in online ads can be followed by managers in developing Bangladesh market to keep reaching online consumers despite Gen Y's negative attitude towards ads on websites.

Analysis of 4 more questions shown in table 7 indicates that advertisements via mobile apps have the lowest chance of success (about 83% deny rate) but other digital advertisements are still clicked by 25-35% Gen Y. Chi-square test of independence shows no significance relation ($p>0.05$ at t_{305}) among the preferences in table 7, respondent's age group and their gender. This acceptance level asks two questions–'What type of advertisements does Gen Y prefer?' and 'What type of advertisements do Gen Y hate'; table 8 provides their answer. Their answer supports the US study mentioned earlier that pop-ups are mostly hated by all Gen Y. Also they are not attracted to an ad if it is not designed attractively. They also feel betrayed if the advertisement provides wrong information to have their attention. They lose trust on the brand as well as the ad delivery channel in such cases. Businesses can show their new products and information to increase brand knowledge in their attempt to attract Gen Y through digital advertisement. These expectations match the US study which found graphics, personalization, bright colour and interactivity as the preferred web features (Taken Smith, 2012). Similar to developed e-commerce market, Gen Y in Bangladesh is influenced by coupons and other types of incentives delivered through digital advertisement channels. These variables lead to the final question of – 'What is the best way to advertise a product or service to you'. There was no significant difference between the age and gender groups; table 9 lists the top eight answers:

Table 7. Negative acceptance rate of digital advertisement

	Does not click on ads on Website	Does not watch video ad before YouTube video	Does not click on ads shown on apps	Does not read SMS advertisement	Does not open or click Email advertisement
	N=305	*N=306*	*N=305*	*N=305*	*N=305*
	% Not at all	*% Not at all*	*% Not at all*	*% Not at all*	*% Not at all*
Male	42.3	34.8	48.3	33.1	42.3
Female	27.9	26.9	33.8	21.6	33.1
Total:	70.2	61.6	82.6	54.8	75.4

Table 8. Top advertisement preference of Gen Y

Things Gen Y hate on ad		Things Gen Y want on ad	
Item	*Percentage (N=298)*	*Item*	*Percentage (N=262)*
Pop-up ad	74.2%	Product variety	24.8%
Bad design and colour	13.2%	Educational / Learning	11.2%
Wrong information	10.2%	Offers / Coupons	9.4%
Slowness and redirection	6.2%	Innovative and interactive	7.2%

The results in table 9 highlights the importance of traditional offline advertisement i.e. billboard and door to door. Surprisingly ads on printed newspaper are not preferred by Gen Y. The outcome also demands better understanding of Facebook i.e. social media habit of Gen Y. Digital Marketers also need to know the specific websites and the types of websites that Gen Y is visiting in order to place advertisements efficiently i.e. Ad placement options available in Google AdWords and user demography in Facebook advertising. About 60% of Gen Y uses internet exclusively to go to Facebook.com, Google.com and YouTube.com. 3.3% visits Cricinfo.com regularly to follow cricket scores and news. About 3% visits Torrent websites for downloading movies. Prothom-alo.com is the most popular news portal with 2.6% regular Gen Y visitors. Other frequently visited websites are Androidauthority.com, Daraz.com, Wiki, 9GAG, BDJobs.com, Shohoz.com, Fashion website, websites with tech information.

Table 9. Advertisement media for Gen Y recommended by Gen Y

Preferred media	Percentage (*N=305)*
Facebook advertisement	17.2%
Billboard	17.1%
Ads on websites	14.1%
TV commercial	11.1%
Facebook and billboard	7.9%
Door to door	3.6%
Facebook and TV commercial	3.0%
SMS, YouTube, Phone call	1.2%

4.4 Digital Communication Trait of Gen Y

Since social media has become the most prominent platform to reach Gen Y, few questions were asked to have a baseline understanding of their traits. Although WhatsApp, Viber and Skype are not classified as social media, related data have been collected during this research to understand communication media of Gen Y. Not surprisingly Facebook tops the list. Similar to earlier study in the similar setup (Rahman, 2015), WhatsApp, Viber and Skype are found to be heavily used by all age groups and gender, but more by younger ladies and elder men. It seems Pinterest is gaining popularities among younger female group (age 18-25). Twitter is less popular in Bangladesh than Instagram. It appears that younger age group of 18-25 is a bigger user of Instagram. Myspace is almost non-existent among Gen Y in Bangladesh. This data is important from marketing and managerial perspective. These groups of people are future and existing human assets of different organizations. They are a generation which is willing to communicate via internet media rather than traditional phone call. For organizations it provides cost savings opportunities and for marketers it offers better reach. In this survey, about 60% respondents uses there mobile phone to access Facebook and 25% uses laptop.

Table 10. Social media and communication application usage by Gen Y

Media and application	Age group 18-25		Age group 26-35	
	Male (%)	Female (%)	Male (%)	Female (%)
Total N = 305	*N=89*	*N=75*	*N=88*	*N=53*
Facebook	99.0	99.0	100	100
Twitter	16.9	13.3	11.3	3.9
Instagram	26.6	31.3	19.2	12.5
Pinterest	6.2	14.2	2.8	1.6
Myspace	1.7	0.0	1.7	1.6
WhatsApp	36.2	43.0	31.6	24.2
Viber	40.7	51.6	39.0	33.6
Skype	39.5	50.0	37.3	25.8

4.5 Online Purchase Behaviour of Gen Y

Table 11 displays the spread of Gen Y who has already started online shopping. It is noticeable that younger Gen Y, especially female (42.5%) have already purchased online, indicating this consumer segment is valuable to ecommerce sector. Chi-Square test also indicates moderate relation between age group and online shopping habit (0.132 at t_{302} with p=0.022 where p<0.05) but does not show any significant relationship between respondent's gender and their online shopping habit (-0.077 at t_{302} with p=0.179 where p>0.05). 30% of the online purchaser bought cloths and jewellery, about 15% bought sports, toys, footwear, gift items and electrical items, 3% bought books. This figures supports the earlier findings that Gen Y wants more cloths and jewellery options online (Rahman, 2015). The interviewers also asked the respondents–'What motivates them to visit ecommerce sites or Facebook shopping pages'. About 50% of the respondents are influenced by the face to face conversations that they have with their friends (WoM), about 20% is influenced by comments made on Facebook by their friends (eWoM (Note 4)), 10.5% is motivated by random comments on the public or closed Facebook groups (Feedback) and 10.2% clicks on the online ad with discounts offers (paid advertisement). Brand endorsement by celebrities (opinion leader) is another paid online marketing technique. About 30% of the respondents sometimes value the post that a celebrity shares and visit that link, most do not (55%). This percentage is as same as the online advertisement clicking habit found in table 7.

Table 11. Online purchasing status

Doing online shopping	Age group 18-25		Age group 26-35	
	Male (%)	Female (%)	Male (%)	Female (%)
Total N = 302	*N=88*	*N=75*	*N=87*	*N=52*
Online shoppers	31.4	42.5	26.3	22.8

4.6 Implication of Web Usability and Service Quality

E-commerce is growing in Bangladesh and internet penetration is increasing. A general scanning of the websites of organizations operating currently in Bangladesh found the need for continuous improvement. Some organizations published their website years ago but have not updated the technical structure to be compatible with today's browser. In most cases the information is outdated. Few questions were asked during the survey to help organizations and developers to improve usability of websites. The first question was to know their preferred search engine. The unarguable winner in this case is Google with 99% market share. Only one user uses Bing, 3 uses Yahoo and these users are from age group 25-35. 12% searchers never go beyond the first search result page of Google and 23% rarely do so. Only 7% searchers look through page 2 and 3 while choosing which link to click. This habit emphasizes the need for better SEO (Note 5) to ensure websites are coming up on the first page of the search results and the brand is not missing out on organic traffic i.e. unpaid advertisement.

In terms of web browsers, 75% uses Google Chrome, 56% uses Firefox and only 6.2% sometimes uses Internet

Explorer. The interesting finding is the number of people with smartphones. 93.1% is using smartphones out of 305 respondents and most of the non-smartphone users (14 people) are 18-25 years old male. Another question was–'Have you recently stopped visiting a website that you used to visit'. 27% respondent answered 'Yes' to that question. Few of those websites with more than one occurrence in the survey are: Twitter.com, Yohoo.com, Bikroy.com, Banglanews24.com, BDnews24.com and Facebook.com (2 people). Conversation with the respondents found that some of them opened Twitter account to learn about it then left the media after evaluating it as it did not seem '*cool*' to them and also because of less popularity among friends. Few respondents abandoned online news portals because of the amount of ads that they did not like, and because of alternate source of the same content. There was an open ended question to allow respondents to suggest what they want when they visit a website. Most Gen Y is looking for correct and updated information. Some suggested ensuring less complexity while navigating the website. Few respondents want to make sure the website is secure and their personal data is safe if they provide. Surprisingly no one in this survey requested for website in Bengali language which is the native language of Bangladesh.

5. Academic Contribution

This research contributes to the research area of online consumer behaviour in relation to Generation Y and growing e-commerce market in Bangladesh. It the first of its kind in the midst of the market transition in Bangladesh and this study will provide a benchmark to the future research works. The findings in this study feed data to the growing community of social media and online consumer engagement researches. Most of such recent researches are developed e-commerce market oriented and this data from a rapidly developing market will add an interesting dimension. Aljukhadar and Senecal (2011) explained three segments of online market: the communicators, the shoppers and the social thrivers. This study complements that and similar online market segmentation analysis by identifying social thrivers and communicators segment in the online landscape of Bangladesh. Continuation of this research in this growing online market may identify all segments of online consumer in near future. Thus this study paves the way for a longitudinal study of digital marketing in Bangladesh similar to the work of Taken Smith (2012), Sultan and Rohm (2004) in US.

6. Managerial Implications and Applications

The key purpose of this market research is to assist managers with digital marketing decision making. PWC (2015a) projects that internet will be the largest advertising segment globally by 2019 but the understanding of how consumers consume media will remain as the biggest managerial challenge. Performance marketing leader Criteo (2015) also predicted that mobile devices will have commanding contribution towards global e-Commerce growth, 40% to be exact by their calculation. Thus cross-device marketing i.e. customizing advertisement for desktops, mobiles, laptops and tablets will be mandatory. Tiago and Veríssimo (2014) recently highlighted the pressure that marketing managers are under to make their online presence effective. Although Bangladesh is not included in the study and projection of these global trending data, the market is showing great potential to become one part of it in coming years. This study provides valuable data to the marketers and the top management to help them make informed digital marketing decision.

The data shows that Gen Y is not active on the internet throughout the day and they are mostly online when brick and mortar shops are usually closed. The management should try to provide customer support services during those traditional off-peak hours while implementing their online growth plan. Also management needs to ensure their website and any other digital presence is mobile compatible. Adequate resources need to be invested to thoroughly test website for usability issues and to ensure the site is updated with information and latest features. Gen Y care about the WoM and eWoM that they receive. Thus organizations not only have to invest in direct paid marketing, they also have to invest in market monitoring such as social media scanning. Bad news travels fast and a negative comment about the brand can become viral in social media in a matter of minutes. Organizations have to prepare themselves for this new kind of media war.

Pull marketing strategy will work better while selling goods and services to Gen Y because they want to engage with the brands and co-create. While thinking of engagement strategy, social cause can serve as a common ground. Thus increasing brand value through Corporate Social Responsibility (CSR) can help digital marketing effort. Offline and traditional advertisement media still attracts Gen Y. Although digital media offers competitively cheaper advertisement options, management cannot take it as a cost saving measure. In a transforming market, they must use the digital media as a complement to the existing advertisement mechanism which are currently bringing revenue to the organization. Gen Y internet using data found in the research will help digital marketers to optimize their advertisement to be more effective and efficient.

7. Limitations and Further Research

Similar to the study that this paper is following (Rahman, 2015), the outcomes in this research are not without limitations and need to be discussed. First, the demography of the survey population do not represent majority of Gen Y in Bangladesh. Most of the participants are either studying at one of the most prestigious private universities in Bangladesh or related to the student. Typically these groups are medium to high achievers in their academic life with access to adequate financial capability to facilitate the use of technology (smartphone, laptop, high speed internet). Conducting the survey on Gen Y with different background may alter some of the findings. Second is the geographic location of the participants. Most of them live and work in the capital city of Bangladesh, Dhaka, where the most viable and feasible access to technology and internet is available. Furthermore, the next advanced city of Bangladesh, Chittagong has not been included in the survey. Third, the unavailability of reference data is another factor. This research is the first of its kind in a rapidly growing online market and researchers with local market knowledge may start to extend this study to assist marketers. Private organizations with interest should invest in such research. The findings will be critical to improve digital advertisement optimization.

The impact of social media needs to be monitored and organizations need to harness its advertising power. Businesses are already using Brand Facebook Pages (BFP) to promote their business. Growth of public Facebook Groups such as DSD (Desperately Seeking in Dhaka) are also evident. In many cases it is becoming a customer service platform for Gen Y. Application of social media in education sector needs to be researched. Online market is rapidly growing in Bangladesh and longitudinal study is recommended.

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Notes

Note 1. Longitudinal study is observation of a subject over a long period of time.

Note 2. ROI: Return of Investment.

Note 3. WoM: Word of Mouth.

Note 4. eWoM: Electronic Word of Mouth.

Note 5. SEO: Search Engine Optimization.

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The Relationship Between Cross Cultural Adaptation and Turnover Intention: A Study of Lao Employees in Foreign Enterprises

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Abstract

With a variety of local advantages, a large number of foreign investments into Laos, Lao's employees in foreign enterprise began to be concerned about their turnover. However, research in this part is still blank. Since most of the researches based on the employees and the organization are belong to the same cultural background, we try to find out if the cultural factor also is one of important factor which impact to local employee's turnover intention. The relationship between cross cultural adaptation and turnover intention is main discussing topic on this study, local employee in foreign enterprise as the research subjects for this study. Based on survey data to calculate the cross-cultural adaptation index and turnover intention index, then regression analysis to find out the relationship of both index. The results proved that cross cultural adaptation and turnover intention was negatively correlated. This means cross-cultural adaptation is not a small obstacle but it's one of the most important factors to determine Laos's employees who work in foreign enterprises to leave or stay.

Keywords: turnover intention, cross cultural adaptation, turnover intention index, cross cultural adaptation index

1. Introduction

Lao People's Democratic Republic was established in 1975, economic reform and opening up in 1983 and overall economic development in recent years. With a variety of local advantages (infrastructure conditions, low labor costs, Policy advantage ... etc.), a large number of foreign investment into Laos, Lao employee in foreign enterprise turnover issue began to be concerned about. However, research in this part is still blank.

Previous studies of employee turnover issue focused on job satisfaction, organizational commitment, organizational support...etc. as main measure. Practice a lot of achievements in this field have also been applied in. But most of the researches based on the employees and the organization it belongs to the same cultural background. Therefore, what would happen if employee and the organization come from different cultural backgrounds? Are the traditional theory and research methods are sufficient to explain all the phenomena? Or some factors more prominent?

Based on the above ideas, local employee in foreign enterprise as the research subjects for this study. To investigate if the employee and the organization were from different cultural backgrounds, the cultural factor will have an impact on employee turnover intention or not? Since previous studies have not been studied turnover intention of Lao employee, especially Lao employee in foreign enterprise. Therefore, this is a new attempt. In order to better reflect the impact of cultural factor to turnover intention, these papers introduce the concept of cross-cultural adaption and analyze the relationship with turnover intention.

2. Literature Review

2.1 The Concept of Cross-Cultural Adaption Ability

Redfield el al. (1936) defined cross cultural adaptation as "Composed by individual and between two group which from different cultures. It had persistent and direct cultural contacts, resulting in one or both of the original cultural patterns change phenomenon." Zhao Qing (2010) believes that cross-cultural adaption is the progress of integration and coordination between two different cultural groups.

Guo Ying el al. (2005) believe that adaptation is the environment and people coordinate with each other to achieve a balanced state. Zhou Lin Gang el al. (2005) mentioned "When the role of individual and the environment changed dramatically will break the original balance". The further explanation by Yu Wei and Zheng Gang (2005) mentioned that "Psychologically unbalanced phenomenon, will inspire individuals to restore the balance between them and the environment". Those who enter a completely different cultural environment will face the role conversion process. This conversion caused by psychological imbalance makes individuals need to be adjusted in order to rebalance the state.

Sam and Berry (2010) believe that the cultural adaptation process will be a cultural and psychological change. On the cultural level, the individual's collective activities and social customs will change. On the psychological level, the daily behavior criterion and the stress experience. In the process, the individual usually takes integration, assimilation, separation or marginalization coping strategies.

Previous cross-cultural adaptation studies based on individuals unable (or do not want) to leave the environment as a basic condition. However, in the present study, individuals (employees) able to leave the cultural environment (working environment of foreign enterprise) at any time, this cultural environment is also a non local cultural environment. Therefore, once the individuals (employees) are not adapted to the cultural environment (working environment in foreign enterprise), the individuals (employees) may have thought of leaving the environment and then generate turnover intention.

2.2 The Concept of Turnover Intention

Porter and Steers (1973) represents "turnover intention" is the next withdrawal behavior after employees experience dissatisfied. Mobley (1997) believe that the next withdrawal behavior after employees experience dissatisfied is "Thinking of quitting". Turnover intention is the last step before the turnover behavior after several step (thinking of quitting, looking for new job, comparison to other job opportunities).

Mobley el al. (1978) believe that turnover intention is the comprehensive reflect of job dissatisfaction, thinking of quitting, the tendency to looking for other job and other job possibilities. This is also the definition of this study.

Price's (2001) turnover process model has better predictive capability which examines the impact of environment, individual, structural and process variable on turnover. Price's turnover theory has the additive property, empirical Research added more variables. Price (2001) noted that further research should be strengthened in the intermediate process; pay more attention to the value of the adjustment function and some of the possible interaction between the variables.

Alfonso el al. (2004) research showed that there are differences in turnover factors and turnover process of employees those from different regions, different industries, different enterprise nature and different cultural background. However, the reason for this difference is not yet produced in-depth study.

Previous turnover intention studies based on employees and organization are from the same cultural background. However, we know that there are differences in turnover factors and turnover process of employees those from different cultural background. Therefore, if employees and organizations are from different cultural backgrounds, cultural factors should also affect turnover intention and behavior.

3. Method

According to the above reasoning, we try to prove if there is a causal relationship between turnover intention and cross-cultural adaptation and how it is affected. In order to better measuring, we will quantify the turnover intention and cross-cultural adaptation.

3.1 Measurement Index Defining

Cross cultural adaptation index is an indicator that reflects the adaptation ability of individual in the different cultural environment. Base on the result of cross-cultural adaptation questionnaire and principal component analysis; calculate the corresponding evaluation of individual cross-cultural adaptability. The final data of the cross culture adaptation questionnaire was analyzed by the principal component analysis method using SPSS software in order to calculate the individual's cross cultural adaptation ability evaluation results.

Turnover intention index is an indicator reflects the possibility of employee turnover. Base on the result of turnover intention questionnaire and principal component analysis; calculate the corresponding evaluation of individual turnover intention possibility. The final data of the turnover intention questionnaire was analyzed by the principal component analysis method using SPSS software in order to calculate the individual's turnover intention evaluation results.

3.2 Index Selection and Questionnaire Design

3.2.1 Cross Cultural Adaptation Index Selection and Questionnaire Design

This paper selected six indicators to reflect the sample Cross cultural adaptation. Mastery of a foreign language has a certain impact on the cross-cultural adaptation, so questionnaire design also adding "Your mastery of a foreign language" and "your education level".

Designed five level variables, Such as 1:I did not feel; 2: General; 3: Okay; 4: Relatively strong; 5: Strong. Some indicators designed as below (full scale see Annex I)

A1: You like to make friends with foreigners.	1	2	3	4	5
A2: You can easily communicate with foreigners.	1	2	3	4	5
A3: You can easily make friends with foreigners.	1	2	3	4	5
A4: You feel excluded by foreigners.	1	2	3	4	5
A5: You can stand on their (foreigners) perspective on the issues.	1	2	3	4	5
A6: You quite understand some acts of foreigners.	1	2	3	4	5

3.2.2 Turnover Intention Index Selection and Questionnaire Design

Huang Chun Sheng (2004) developed the scale of turnover intention:

1) I want to keep working in this company;
2) Sometimes you feel tired with your current job and want to change your job;
3) If you have suitable jobs I will accept;
4) I will leave the current company within a year.

Zhang Yue (2007) used two indicators to reflect turnover intention.

1) I will look for others job opportunities;
2) If you have suitable jobs I will accept.

Based on the above scales and considering to local employment situation, we put another question "If the salary is same with state-owned enterprises, you will leave foreign company": Number from 1~5 indicates the level or possibility of each question (1: Definitely not; 2: Low probably; 3: Probably; 4: High probably and 5: Definitely yes).

C1: Sometimes you feel tired with your current job and want to change your job.	1	2	3	4	5
C2: I will look for others job opportunities.	1	2	3	4	5
C3: If you have suitable jobs I will accept.	1	2	3	4	5
C4: I will leave the current company within a year.	1	2	3	4	5
C5: I will leave the current company within 3 year.	1	2	3	4	5
C6: If the salary is same with state-owned enterprises, you will leave foreign company.	1	2	3	4	5

3.3 Investigation Process

The subjects of this study are local employees (Laotian) who work for foreign enterprises in Laos (Included European, Japanese, Korean, Chinese, Southeast Asia … etc.). 500 invited, 300 recruited samples, 248 valid samples (82.66% of valid data).

We target to local employees who work for foreign enterprises in Laos base on the relationship with several associations (Lao students Association in Japan, Lao student association in China, Lao student association in Australia … etc.). We used online survey to collect sample for this study.

Used below screening questions, only those respondents who are full time worker and work for foreign enterprises able to access to the main survey.

S1. Please select your working status:

1) Full time worker;
2) Part time worker;
3) Others.

Only those select option 1 “Full time worker” on S1 will able to continue the survey, all of other option will be terminated.

S2. Please select your company type:

1) Foreign company;
2) Local company;
3) Government units;
4) Others.

Only those select option 1 “Foreign company” on S2 will able to continue the survey, all of other option will be terminated.

3.4 Scale Test

To ensure the validity of both turnover intention and cross cultural adaptation scales we use, we use the SPSS software to perform the following validation.

Table 1 presents the result of cross cultural adaptation scale test obtained. Cronbach’s Alpha index is 0.811 which greater than 0.7. Description the scales has good reliability.

Table 1. Reliability statistics

Cronbach’s Alpha	N of Items
0.811	20

Table 2 presents the result of turnover intention scale test obtained. We have 0.827 Cronbach’s Alpha index which greater than 0.7. Description the scales has good reliability.

Table 2. Reliability statistics

Cronbach’s Alpha	N of Items
0.827	6

3.5 Analysis

3.5.1 Mean Analysis

Table 3 presents the result of mean analysis of cross cultural adaptation, various factors concentrated in medium and medium high level. Middle high included “You can accept any change”, “You like the challenge”, “You like to make friends with foreigners”, “You agree with the corporate culture in the organization you work for”, “You can accept foreigners strange behavior”, “You proficiency in a foreign language”, “You like watching a foreign film”, “You can easily make friends with foreigners”, “You can understand their jokes and humor”, “You can endure the harsh reality”. The highest is “You can accept any change” and lowest is “You can endure the harsh reality”.

Medium level included “You like to solve problems independently”, “You think foreigners are friendly”, “You quite understand some acts of foreigners”, “If someone hurt you, you can accept his/her apology”, “You can stand on their (foreigners) perspective on the issues”, “You like foreign food”, “You can accept a foreigner pursuit”, “You can easily communicate with foreigners”, “You feel excluded by foreigners”. The highest is “You like to solve problems independently” and lowest is “You feel excluded by foreigners”.

Table 3. Descriptive statistics

	N	Mean	Std. Deviation
A1	248	3.217742	1.03
A2	248	2.524194	0.731
A3	248	3.03629	1.225
A4	248	2.169355	1.066
A5	248	2.895161	0.847
A6	248	2.967742	1.131
A7	248	2.971774	0.991
A8	248	3.16129	0.857
A9	248	3.189516	0.9
A10	248	2.850806	0.934
A11	248	2.810484	1.087
A12	248	3.016129	0.994
A13	248	3.080645	1.251
A14	248	3.112903	0.987
A15	248	3.096774	0.702
A16	248	3	1.006
A17	248	2.991935	0.969
A18	248	3.229839	1.145
A19	248	2.96371	0.991
A20	248	3.387097	1.085
Valid N (listwise)	248		

Table 4 presents the result of mean analysis of turnover intention, various factors concentrated in medium and medium high level. Medium high included “I will leave the current company within 3 year” and “If you have suitable jobs I will accept”, “I will leave the current company within 3 year” is highest.

Medium level included “If the salary is same with state-owned enterprises, you will leave foreign company.”, “I will look for others job opportunities”, “Sometimes you feel tired with your current job and want to change your job” and “I will leave the current company within a year”. The highest is “If the salary is same with state-owned enterprises, you will leave foreign company.” And lowest is “I will leave the current company within a year”.

Table 4. Turnover intention descriptive statistics

	N	Mean	Std. Deviation
C1	248	2.58871	0.8
C2	248	2.875	0.946
C3	248	3	1.214
C4	248	2.306452	1.139
C5	248	3.193548	1.28
C6	248	2.959677	1.21
Valid N (listwise)	248		

3.5.2 Factor Analysis

In order to calculate the cross cultural adaptation and turnover intention index, we first verify the following questionnaire data and pre calculation.

Table 5 presents the result of KMO and Bartlett's Test on cross cultural adaptation scale obtained. KMO index is 0.682 which greater than 0.5 and Bartlett test value is 0.000 which less than 0.05. Indicating that the scale has construct validity and suitable for factor analysis.

Table 5. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.682
Bartlett's Test of Sphericity	Approx. Chi-Square	1429.427
	Df	190
	Sig.	.000

Table 6 presents the result of total variance explained on cross cultural adaptation scale obtained.

Table 6. Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.567	22.833	22.833	4.567	22.833	22.833	1.541	7.703	7.703
2	1.968	9.842	32.675	1.968	9.842	32.675	1.483	7.416	15.119
3	1.678	8.391	41.066	1.678	8.391	41.066	1.422	7.111	22.230
4	1.483	7.417	48.483	1.483	7.417	48.483	1.383	6.914	29.143
5	1.202	6.012	54.495	1.202	6.012	54.495	1.367	6.835	35.979
6	1.153	5.764	60.259	1.153	5.764	60.259	1.343	6.714	42.693
7	1.049	5.246	65.505	1.049	5.246	65.505	1.340	6.702	49.395
8	.900	4.502	70.007	.900	4.502	70.007	1.265	6.325	55.720
9	.828	4.141	74.148	.828	4.141	74.148	1.216	6.078	61.798
10	.768	3.839	77.988	.768	3.839	77.988	1.201	6.003	67.801
11	.697	3.485	81.473	.697	3.485	81.473	1.200	6.000	73.801
12	.672	3.360	84.833	.672	3.360	84.833	1.142	5.708	79.509
13	.567	2.834	87.667	.567	2.834	87.667	1.139	5.697	85.206
14	.519	2.593	90.259	.519	2.593	90.259	1.011	5.053	90.259
15	.423	2.113	92.372						
16	.403	2.017	94.389						
17	.361	1.805	96.195						
18	.278	1.391	97.585						
19	.249	1.244	98.829						
20	.234	1.171	100.000						

Based on the output of eigenvalues greater than 0.5. Using factor analysis, we got 14 factors from Lao employee cross cultural adaptation scale, cover 90% of all information. The third column shows the factor after rotation, total variance contribution rate unchanged, indicating that does not affect the original Common degree.

Table 7 presents the result of Component Score Coefficient Matrix on cross cultural adaptation scale obtained.

Table 7. Component score coefficient matrix

	Component													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A1	-.067	.258	-.067	.389	-.083	.184	.109	-.165	-.061	-.163	-.012	-.067	-.038	.074
A2	-.076	.079	.091	-.065	-.081	-.058	.004	-.024	-.085	.878	-.023	-.133	-.100	.055
A3	-.022	.809	-.008	-.046	-.080	-.056	-.203	-.085	-.051	.129	-.200	-.048	.003	-.043
A4	-.160	.381	.026	-.263	.031	-.312	.327	.450	.021	-.144	.260	-.064	-.052	-.294
A5	.106	.093	.437	.080	.322	.041	-.087	-.334	-.140	-.078	.032	.196	-.221	-.091
A6	-.029	-.057	-.069	-.059	.139	-.036	-.135	.065	-.034	-.103	.007	.941	-.006	.016
A7	-.128	-.061	-.071	-.219	-.003	.740	-.068	.110	.098	-.002	.042	-.044	.106	-.013
A8	-.024	-.106	-.059	-.026	.053	.008	.058	-.071	-.026	.033	.077	.034	-.025	.882
A9	.032	-.180	-.066	.026	-.035	.125	-.112	-.094	-.177	.003	.927	-.008	-.075	.143
A10	.003	-.148	.003	-.070	-.156	-.066	.844	.008	-.004	.040	-.084	-.123	.075	.100
A11	.702	-.027	.092	-.118	-.032	-.241	-.021	-.129	.028	-.039	-.027	-.003	.248	-.062
A12	-.138	-.083	.083	-.086	.761	.030	-.127	-.032	.014	-.119	-.124	.049	-.064	.210
A13	-.124	-.218	.153	.280	-.263	-.069	.222	-.083	.559	-.014	-.139	.216	.086	-.156
A14	.063	-.062	-.351	-.023	.437	-.219	.104	.028	.128	.302	.236	.082	.036	-.483
A15	.479	-.164	-.052	.256	-.344	.413	.068	.079	-.121	-.090	-.053	-.056	-.164	.141
A16	.011	-.020	-.112	.729	-.021	-.146	-.117	.122	-.178	.030	.002	-.081	-.022	-.028
A17	.157	-.053	-.093	-.010	-.134	.077	.018	-.009	-.149	-.095	-.076	-.027	.977	.021
A18	.013	-.024	.688	-.162	-.037	-.091	.001	.079	.011	.111	-.036	-.130	-.012	-.039
A19	.021	.021	-.020	-.180	.087	.136	-.143	-.065	.823	-.076	-.115	-.093	-.160	.098
A20	-.031	-.129	-.031	.090	-.077	.136	-.082	.758	-.071	-.021	-.112	.084	-.014	.014

Table 8. KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.819
Bartlett's Test of Sphericity	Approx. Chi-Square	525.218
	Df	15
	Sig.	.000

Table 8 presents the result of KMO and Bartlett's Test on turnover intention scale obtained. KMO index is 0.819 which greater than 0.5 and Bartlett test value is 0.000 which less than 0.05. Indicating that the scale has construct validity and suitable for factor analysis.

Table 9 presents the result of total variance explained on turnover intention scale obtained.

Table 9. Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.294	54.908	54.908	3.294	54.908	54.908	1.739	28.98	28.98
2	0.768	12.798	67.706	0.768	12.798	67.706	1.432	23.864	52.844
3	0.708	11.804	79.511	0.708	11.804	79.511	1.072	17.861	70.705
4	0.513	8.544	88.055	0.513	8.544	88.055	1.041	17.35	88.055
5	0.4	6.667	94.722						
6	0.317	5.278	100						

Based on the output of eigenvalues greater than 0.5. Using factor analysis, we got 4 factors from Lao employee turnover intention scale, cover 88.055% of all information. The third column shows the factor after rotation, total variance contribution rate unchanged, indicating that does not affect the original Common degree.

Table 10 presents the result of Component Score Coefficient Matrix on turnover intention scale obtained.

Table 10. Component score coefficient matrix

	Component			
	1	2	3	4
C1	0.091	0.526	-0.439	0.12
C2	-0.291	0.867	0.173	-0.309
C3	-0.191	-0.225	-0.067	1.158
C4	0.585	-0.005	0.081	-0.353
C5	0.669	-0.308	-0.121	0.055
C6	-0.092	-0.136	1.005	-0.102

3.6 Index Calculation

Base on above pre calculated of both cross cultural adaptation and turnover intention, we have both index calculation processes below:

3.6.1 Cross Cultural Adaptation Index

To get the cross cultural adaptation index of Lao employee who work in foreign enterprises. We need to calculate the standardization scores of each factor using below formula:

$$Y=(X-u)/\sigma$$

X is the variable value, u is the sample mean, σ is the sample standard deviation. Therefore, standardized scores $G1= Score\ Coefficient_{11}*(A_{11}-u_{11})/\sigma 1_1+Score\ Coefficient_{21}*(A_{21}-u_{21})/\sigma_2+...+ Score\ Coefficient\ _{201}*(A_{20}-u_{20})/\sigma_{20}$

Base on Table 3 and Table7. Case in D1, we got factor standardization score of D1 is:

G1={[(4-3.217742)/1.030392]*(-0.066987)}+{[(3-2.524194)/0.730633]*(-0.076188)}+{[(2-3.036290)/1.225031]*(-0.022397)}+{[(2-2.169355)/1.066393]*(-0.160206)}+{[(4-2.895161)/0.847177]*(0.105668)}+{[(3-2.967742)/1.130623]*(-0.028686)}+{[(3-2.971774)/0.991466]*(-0.128361)}+{[(4-3.161290)/0.857329]*(-0.024178)}+{[(4-3.189516)/0.900051]*(0.031775)}+{[(3-2.850806)/0.934017]*(0.002799)}+{[(3-2.810484)/1.087457]*(0.702463)}+{[(3-3.016129)/0.993777]*(-0.138336)}+{[(4-3.080645)/1.250728]*(-0.124306)}+{[(4-3.112903)/0.987449]*(0.063407)}+{[(5-3.096774)/0.701870]*(0.479365)}+{[(4-3.000000)/1.006055]*(0.010631)}+{[(3-2.991935)/0.969126]*(0.157013)}+{[(4-3.229839)/1.145134]*(0.013423)}+{[(3-2.963710)/0.991203]*(0.020857)}+{[(4-3.387097)/1.085120]*(-0.031404)}= 1.476712

Similarly, we obtain:

G2=-1.440320;G3=0.463272;G4=1.933737;G5=-0.471823;G6=1.087744;G7=0.448031;G8=0.031734;G9=-0.404987;G10=0.399926;G11=0.913569;G12=0.153286;G13=-0.791976;G14=0.839985

Then, calculate cross cultural adaptation index according to Table 6. Case in D1, we got cross cultural adaptation index is:

L1=(1.476712*0.077028)+(-1.440320*0.074158)+(0.463272*0.071112)+(1.933737*0.069138)+(-0.471823*0.068354)+(1.087744*0.067137)+(0.448031*0.067024)+(0.031734*0.063250)+(-0.404987*0.060777)+(0.399926*0.060030)+(0.913569*0.059998)+(0.153286*0.057081)+(-0.791976*0.056973)+(0.839985*0.050534)= 0.306669

Similarly, we can calculate D2 to D248's cross cultural adaptation index.

3.6.2 Turnover Intention Index

To get the turnover intention index of Lao employee who work in foreign enterprises. We need to calculate the standardization scores of each factor using below formula:

$$Y=(C-u)/\sigma$$

C is the variable value, u is the sample mean, σ is the sample standard deviation. Therefore, standardized scores $H1= Score\ Coefficient_{11}*(C_1-u_1)/\sigma_1+ Score\ Coefficient_{21}*(C_2-u_2)/\sigma_2+......+ Score\ Coefficient_{61}*(C_6-u_6)/\sigma_6$.

Base on Table 4 and Table10. Case in D1, we got factor standardization score of D1 is:

H1={[(1-2.588710)/0.799920]*(0.091475)}+{[(2-2.875000)/0.946173]*(-0.290968)}+{[(1-3.000000)/1.213954]*(-0.191334)}+{[(2-2.306452)/1.139482]*(0.585249)}+{[(1-3.193548)/1.280039]*(0.669440)}+{[(1-2.959677)/1.209940]*(-0.091592)}= -0.753612

Similarly, we obtain H2= -0.726112; H3= -0.620500 and H4=-1.695121.

Then, calculate turnover intention index according to Table 9. Case in D1, we got cross cultural adaptation index is:

*M1=(-0.753612*0.289799)+(-0.726112*0.238644)+(-0.620500*0.178607)+(-1.695121*0.173499)= -0.796605*

Similarly, we can calculate D2 to D248's turnover intention index.

According to above method, we got cross cultural adaptation index and turnover intention index of each respondent on Table 10 (full content see Annex I I).

Table 10. Cross cultural adaptation index, turnover intention index (partial content)

Respondents	Cross cultural adaptation index	Turnover intention index
D1	0.306669	-0.796605
D2	0.021867	-0.123961
D3	-0.117529	0.166742
D4	0.116911	-0.038063
D5	-0.312975	0.762096
D6	0.001992	-0.273485
D7	-0.474553	0.719962
D8	0.030495	-0.103714
D9	-0.074048	-0.325765

4. Results

Base on above calculated result of both cross cultural adaptation and turnover intention index. Using SPSS software for correlation analysis and regression as follows to find out whether there is linear correlation and regression model between both indexes.

4.1 Correlation Analysis

Figure 1 presents the result of correlation analysis between cross cultural adaptation index and turnover intention index obtained. Base on Table 10, using SPSS "Scatter" module to find out if there is a linear relationship between cross cultural adaptation index and turnover intention index.

Figure 1 result showed that there is a strong negative correlation between cross cultural adaptation index and turnover intention index.

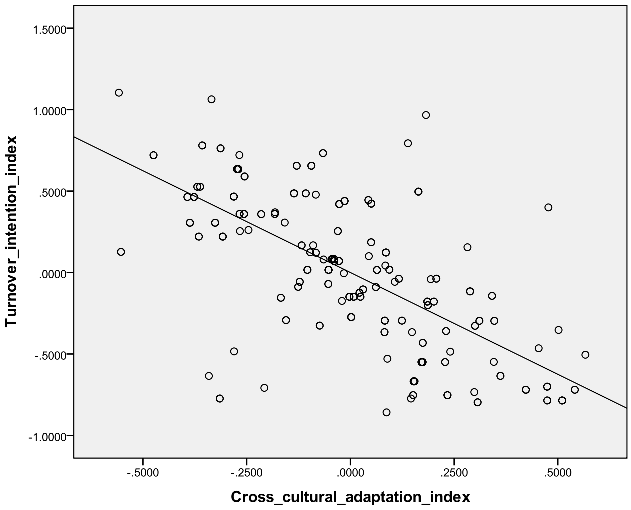

Figure 1. Relationship between cross cultural adaptation index and turnover intention index

Table 11, Table 12 and Table 13 presents the result of a linear regression between cross cultural adaptation index and turnover intention index obtained.

Table 11. Model summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.673[a]	0.453	0.451	0.3338	2.295

[a]. Predictors: (Constant), Cross cultural adaptation index;

[b]. Dependent Variable: Turnover intention index.

Table 12. ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.71	1	22.71	203.782	.000[a]
	Residual	27.415	246	0.111		
	Total	50.125	247			

[a]. Predictors: (Constant), Cross cultural adaptation index;

[b]. Dependent Variable: Turnover intention index.

Table 13. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.45E-07	0.021		0	1
	Cross cultural adaptation index	-1.249	0.088	-0.673	-14.3	0

a. Dependent Variable: Turnover intention index.

Base on the result of a linear regression between cross cultural adaptation index and turnover intention index obtained. Cross cultural adaptation index each increase of 1 unit, turnover intention index will be reduced for 1.249 units.

F test: Base on Table 12. We got F test significant value is 0 which less than 0.05, description that our regression model has statistical significance, regression results is significant.

T test: Base on Table 13. Sig. of dependent variable (Cross cultural adaptation index) is 0 which less than 0.05, description that the interpretation of cross cultural adaptation index to turnover intention index has statistical significance, the correlation of both index is significant.

Correlation coefficient: Base on Table 11. The correlation coefficient of cross cultural adaptation index and turnover intention index is 0.673, Durbin-Wastson index is 2.295, linear correlation between both indexes is significant.

Base on above. We found that there is linear correlation between cross cultural adaptation index and turnover intention index and there is a strong negative correlation. For the target people of this study, cross cultural adaptation is an important factor of turnover intention.

5. Discussion and Conclusion

5.1 Theoretical and Practical Implications

Previous studies about turnover issue focused on job satisfaction, organizational commitment, organizational support...etc. Moreover, most of previous researches based on the employee and the organization are belong to the same cultural background.

The results of this study show that there is linear correlation between cross cultural adaptation index and turnover intention index and there is a strong negative correlation. This means that the cultural factors can directly affect to the turnover issue of Lao employees who work in foreign enterprise. Cross cultural adaptation is not a small obstacle but it’s one of the most important factors which is able to determine employees to leave or stay, especially for employees and organization are from different cultural background.

Working environment in foreign enterprises those running business in Laos is rather special, especially cultural environment which influenced by foreign enterprises their own enterprise culture, native culture and local culture, such culture even different from any single culture.

Since employee belongs to local culture background, which has different working culture environment; such differences included information handling, information understanding level and mindset. Under a particular traditional culture and living environment, people have common distinctive features. In order to properly train employees, improve their own efficiency and reduce the hidden costs by turnover; Enterprises should have an open mind and good learning ability. Enterprises not only need to understand the performance characteristics of its distinctive shape, more is needed to understand there are a lot of factors behind; contact between them and its impact.

We can reduce turnover intention by increasing cross cultural adaptation. However, cross-cultural adaptation was the result of employees and businesses from different cultural backgrounds, this issue is generated after employees joined foreign enterprise. Therefore, we know the following:

(1) Cross cultural adaptation issue is the result of the mutual influence of both employees and foreign enterprise; (2) Babiker et al. (1980) proposed that the psychological and cultural adaptation of the problem is precisely because of the differences between home culture and the new culture. Those who feel a greater cultural difference will be faced with a greater change in life in the process of cross-cultural adaptation, which will give them more stress, depression and other adaptation problems. According to Babiker’s theory, we predict that Employees work in different types of foreign enterprise (For example: European enterprise, American enterprise, Japanese enterprise, Korean enterprise, Chinese enterprise, etc.) will have different level of cross cultural adaptation issue; (3) While the cultural environment of foreign enterprise impact to the local employees, the local employees also impact on the cultural environment of foreign enterprise. Therefore, in order to reduce cross cultural adaptation issue, foreign enterprise should establish an effective way to communicate and cultural exchange mechanism.

5.2 Limitations

As in any study, there are some limitations in our study as well. Definitely, the larger sample size would enable us to attain more generalizable results. Secondly, using convenience sampling method, our sample may have some deficiencies in terms of variability and representability of the population.

5.3 Suggestions

We empirically articulate the manifestation of cross-cultural adaptation as a variable. Yet, it may have some other systematic influences on the above-posited relationships. First, we suggest researchers consider a moderated mediation effect into their research based on modeling. Second, it is better to replicate this research with a larger sample size in order to validate our results. Third, in future, the role of other individual factors such as organization type and personality traits on cross cultural adaptation can be investigated.

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Appendix A

Questionnaire

Thank you very much for participation on this survey.

This is an academic study which discuss about cross cultural adaptation and turnover intention. We try to understand if cross cultural adaptation will effect to the turnover intention.

We would like to know how you feel about each part of cross cultural adaptation and your possibility to leave your current company.

There is no correct or incorrect option in this survey. Please select the option which best descript to your current situation.

Your provided information will not be disclose to any third part. All information will be use on unified analysis.

S1：Please select your working status	
1. Full time worker	Continue
2. Part time worker	*Terminated*
3.Others	*Terminated*

S2. Please select your company type	
1. Foreign company	Continue
2. Local company	*Terminated*
3. Government units	*Terminated*
4. Others	*Terminated*

Part 1: Cross cultural adaptation

Below questions asking about the ability of your cross cultural adaptation. Please view each question carefully and select the option which best descript to your current situation.

	I did not feel	General	Okay	Relatively strong	Strong
A1：You like to make friends with foreigners	1	2	3	4	5
A2：You can easily communicate with foreigners	1	2	3	4	5
A3：You can easily make friends with foreigners	1	2	3	4	5
A4：You feel excluded by foreigners	1	2	3	4	5
A5：You can stand on their (foreigners) perspective on the issues	1	2	3	4	5
A6：You quite understand some acts of foreigners	1	2	3	4	5
A7：You think foreigners are friendly	1	2	3	4	5
A8：You can accept foreigners strange behavior	1	2	3	4	5
A9：You agree with the corporate culture in the organization you work for	1	2	3	4	5
A10：You like foreign food	1	2	3	4	5
A11：You can accept a foreigner pursuit	1	2	3	4	5
A12：You can understand their jokes and humor	1	2	3	4	5
A13：You like watching a foreign film	1	2	3	4	5
A14：You proficiency in a foreign language	1	2	3	4	5
A15：Your education level (1: Middle school, 2: High school, 3: Undergraduate, 4: Master, 5: PHD)	1	2	3	4	5
A16：You can endure the harsh reality	1	2	3	4	5
A17：You like to solve problems independently	1	2	3	4	5
A18：You like the challenge	1	2	3	4	5
A19：If some one hurt you, you can accept his/her apology	1	2	3	4	5
A20：You can accept any change	1	2	3	4	5

Part 2: Turnover intention

Below questions asking about your possibility to leave your current company.Please view each question carefully and select the option which best descript to your current situation.

	Definitely not	Low probably	Probably	High probably	Definitely yes
C1：Sometimes you feel tired with your current job and want to change your job	1	2	3	4	5
C2：I will look for others job opportunities	1	2	3	4	5
C3：If you have suitable jobs I will accept	1	2	3	4	5
C4：I will leave the current company within a year	1	2	3	4	5
C5：I will leave the current company within 3 year	1	2	3	4	5
C6：If the salary is same with state-owned enterprises, you will leave foreign company.	1	2	3	4	5

Appendix B

Respondent	Cross cultural adaptation index	Turnover intention index	Respondent	Cross cultural adaptation index	Turnover intention index
D1	0.306669	-0.796605	D125	0.345718	-0.548651
D2	0.021867	-0.123961	D126	0.501781	-0.352595
D3	-0.117529	0.166742	D127	0.29865	-0.733838
D4	0.116911	-0.038063	D128	-0.015668	-0.004543
D5	-0.312975	0.762096	D129	0.146033	-0.77335
D6	0.001992	-0.273485	D130	0.087109	-0.858353
D7	-0.474553	0.719962	D131	-0.334792	1.063066
D8	0.030495	-0.103714	D132	-0.083362	0.477843
D9	-0.074048	-0.325765	D133	-0.089777	0.167125
D10	-0.255115	0.589558	D134	0.044473	0.100437
D11	0.230585	-0.359382	D135	-0.158263	0.306676
D12	-0.155178	-0.292479	D136	0.089152	-0.529153
D13	-0.043207	0.081856	D137	-0.266246	0.254277
D14	-0.065981	0.732616	D138	0.453837	-0.464897
D15	0.207167	-0.037676	D139	0.182245	0.966663
D16	0.082206	-0.365846	D140	-0.207469	-0.707818
D17	-0.053262	-0.07031	D141	0.107003	-0.057059
D18	-0.167568	-0.154814	D142	-0.280357	-0.484016
D19	0.163993	0.496694	D143	-0.341086	-0.63467
D20	-0.552984	0.126879	D144	0.193753	-0.040828
D21	0.341387	-0.143078	D145	0.566463	-0.504648
D22	0.174475	-0.431616	D146	0.240662	-0.485767
D23	0.049966	0.185743	D147	0.138782	0.79333
D24	0.361638	-0.634549	D148	0.477246	0.399657
D25	-0.12208	-0.056939	D149	-0.064635	0.080107
D26	0.001992	-0.273485	D150	-0.245679	0.260976
D27	0.228307	-0.549783	D151	-0.181669	0.369678
D28	0.093898	0.017221	D152	0.148515	-0.365846
D29	-0.214984	0.358276	D153	0.282155	0.155107
D30	-0.314905	-0.77335	D154	-0.020348	-0.174312
D31	0.300426	-0.327015	D155	-0.26764	0.721096
D32	-0.357039	0.779959	D156	0.084278	0.042917
D33	-0.362355	0.526679	D157	0.163993	0.496694
D34	-0.096896	0.124226	D158	-0.55809	1.103947
D35	0.31093	-0.296621	D159	0.306669	-0.796605
D36	-0.125883	-0.087797	D160	0.021867	-0.123961
D37	0.15123	-0.752716	D161	-0.117529	0.166742
D38	0.061504	-0.089545	D162	0.116911	-0.038063
D39	-0.392923	0.463675	D163	-0.312975	0.762096
D40	0.540974	-0.719435	D164	0.001992	-0.273485

D41	-0.107557	0.485793	D165	-0.474553	0.719962
D42	0.124239	-0.295247	D166	0.030495	-0.103714
D43	-0.365334	0.220657	D167	-0.074048	-0.325765
D44	-0.045257	0.081976	D168	-0.255115	0.589558
D45	0.201211	-0.178454	D169	0.230585	-0.359382
D46	-0.030273	0.254277	D170	-0.155178	-0.292479
D47	0.154511	-0.667953	D171	-0.043207	0.081856
D48	-0.052644	0.016207	D172	-0.065981	0.732616
D49	-0.267096	0.359409	D173	0.207167	-0.037676
D50	0.474524	-0.785205	D174	0.082206	-0.365846
D51	-0.129397	0.655329	D175	-0.053262	-0.07031
D52	0.024233	-0.148734	D176	-0.167568	-0.154814
D53	-0.369053	0.526679	D177	0.163993	0.496694
D54	-0.083173	0.121723	D178	-0.552984	0.126879
D55	0.346901	-0.296621	D179	0.341387	-0.143078
D56	0.043303	0.444678	D180	0.174475	-0.431616
D57	0.233911	-0.752716	D181	0.049966	0.185743
D58	0.063935	0.015968	D182	0.361638	-0.634549
D59	-0.376761	0.463675	D183	-0.12208	-0.056939
D60	0.422932	-0.719435	D184	0.001992	-0.273485
D61	-0.135914	0.485793	D185	0.228307	-0.549783
D62	0.082961	-0.295247	D186	0.093898	0.017221
D63	-0.30777	0.220657	D187	-0.214984	0.358276
D64	-0.038983	0.081976	D188	-0.314905	-0.77335
D65	0.185409	-0.178454	D189	0.300426	-0.327015
D66	0.050333	0.422677	D190	-0.357039	0.779959
D67	0.171428	-0.549783	D191	-0.362355	0.526679
D68	-0.052644	0.016207	D192	-0.096896	0.124226
D69	-0.256243	0.359409	D193	0.31093	-0.296621
D70	0.510496	-0.785205	D194	-0.125883	-0.087797
D71	-0.094154	0.655329	D195	0.15123	-0.752716
D72	-0.002407	-0.148734	D196	0.061504	-0.089545
D73	-0.326118	0.305541	D197	-0.392923	0.463675
D74	-0.03887	0.070575	D198	0.540974	-0.719435
D75	0.1867	-0.200452	D199	-0.107557	0.485793
D76	-0.013968	0.438902	D200	0.124239	-0.295247
D77	0.152455	-0.667953	D201	-0.365334	0.220657
D78	-0.103693	0.016207	D202	-0.045257	0.081976
D79	-0.281088	0.466178	D203	0.201211	-0.178454
D80	0.474341	-0.700436	D204	-0.030273	0.254277
D81	-0.270151	0.634695	D205	0.154511	-0.667953
D82	0.007987	-0.148734	D206	-0.052644	0.016207

D83	-0.386855	0.305541	D207	-0.267096	0.359409
D84	-0.027249	0.070575	D208	0.474524	-0.785205
D85	0.288432	-0.115569	D209	-0.129397	0.655329
D86	-0.026944	0.420022	D210	0.024233	-0.148734
D87	0.17398	-0.549783	D211	-0.369053	0.526679
D88	0.085655	0.122974	D212	-0.083173	0.121723
D89	-0.182333	0.359409	D213	0.346901	-0.296621
D90	-0.273259	0.634695	D214	0.043303	0.444678
D91	0.233911	-0.752716	D215	0.233911	-0.752716
D92	0.063935	0.015968	D216	0.063935	0.015968
D93	-0.376761	0.463675	D217	-0.376761	0.463675
D94	0.422932	-0.719435	D218	0.422932	-0.719435
D95	-0.135914	0.485793	D219	-0.135914	0.485793
D96	0.082961	-0.295247	D220	0.082961	-0.295247
D97	-0.30777	0.220657	D221	-0.30777	0.220657
D98	-0.038983	0.081976	D222	-0.038983	0.081976
D99	0.185409	-0.178454	D223	0.185409	-0.178454
D100	0.050333	0.422677	D224	0.050333	0.422677
D101	0.171428	-0.549783	D225	0.171428	-0.549783
D102	-0.052644	0.016207	D226	-0.052644	0.016207
D103	-0.256243	0.359409	D227	-0.256243	0.359409
D104	0.510496	-0.785205	D228	0.510496	-0.785205
D105	-0.094154	0.655329	D229	-0.094154	0.655329
D106	-0.002407	-0.148734	D230	-0.002407	-0.148734
D107	-0.326118	0.305541	D231	-0.326118	0.305541
D108	-0.03887	0.070575	D232	-0.03887	0.070575
D109	0.1867	-0.200452	D233	0.1867	-0.200452
D110	-0.013968	0.438902	D234	-0.013968	0.438902
D111	0.152455	-0.667953	D235	0.152455	-0.667953
D112	-0.103693	0.016207	D236	-0.103693	0.016207
D113	-0.281088	0.466178	D237	-0.281088	0.466178
D114	0.474341	-0.700436	D238	0.474341	-0.700436
D115	-0.270151	0.634695	D239	-0.270151	0.634695
D116	0.007987	-0.148734	D240	0.007987	-0.148734
D117	-0.386855	0.305541	D241	-0.386855	0.305541
D118	-0.027249	0.070575	D242	-0.027249	0.070575
D119	0.288432	-0.115569	D243	0.288432	-0.115569
D120	-0.026944	0.420022	D244	-0.026944	0.420022
D121	0.17398	-0.549783	D245	0.17398	-0.549783
D122	0.085655	0.122974	D246	0.085655	0.122974
D123	-0.182333	0.359409	D247	-0.182333	0.359409
D124	-0.273259	0.634695	D248	-0.273259	0.634695

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Control and Public Management Performance in Brazil: Challenges for Coordination

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Abstract

This study analyzes the multiplicity of organs and control actions as a distinctive characteristic of the Brazilian control system, and the positive effect of the performance of these organs upon the management of federal programs. As shown in international literature, we can also see in Brazil an expansion of the action of control organs, which have started evaluating performance and, therefore, go beyond mere verification of the legality of administrative actions. Nevertheless, the multiplicity and diversity of these organs have meant the appearance of tensions and conflicts in the relationship between controllers and those controlled. Through the analysis of documents and interviews with managers and the controllers of federal government oversight bodies, we conclude that the process of auditing and evaluation leads to the appearance of cooperative practices that improve the administration's performance, but which themselves need improving.

Keywords: control, auditing, efficiency, public management, Brazil

1. Introduction

The control systems of public administration have been gaining importance in many contemporary democracies as a function of the growing demand for more government transparency and accountability. These issues entered the public agenda in Latin America countries in the 1980s and 1990s, boosted by the processes of re-democratization and by the State's experimentation with reforms.

In Brazil, control and auditing institutions have undergone changes since the re-democratization of 1985 and the new Constitution of 1988, which set out processes for institutional renewal and the strengthening of republican practices. Contrary to international experience, however, Brazil is characterized by a multiplicity of control institutions, with varying scope, but which are often superimposed in an inconsistent manner. Another difference in Brazil relative to the international experience is the latent conflict between control agencies and the organs of public administration. The control and auditing activity is still seen by officials as predominantly based on the standards of strict legality, and there are divergences about how to define the performance assessment standards.

What are the impacts of institutionalization and expansion of the control actions of public policies in Brazil today? This is the question that guided our study. Empirical research has shown that, beyond the strengthening of control agencies in general, conveyed by the Brazilian democratization process, changes of the old decentralized system of internal control–dispersed in the various bodies of the Executive and subordinate to each Minister–and its replacement to a new a model that centralized the internal control procedures in a single organ, created with ministerial status, therefore with more importance before the governmental structure, had two contradictory effects. On the one hand, such change increased the efficiency of the control itself. On the other, it had led to conflicts between the various control agencies, among auditors (whom had their activity now carried out effectively) and managers who resisted the control activities, once they seen it as barriers to management. If this double and paradoxical situation-advancement of the control and increasing demands for more government efficiency in delivering public services-is the outcome of the very expansion of the democratic order in the country. What we seek to emphasize in this research is a concrete matter of public administration: how to encourage forms of coordination and avoid conflicts that could hinder or even disrupt the effective government action.

The text is organized as follows: after the description of the research methodology and a brief literature review, we analyze the control system structure in Brazil and its incremental advances. Thus, we discuss the core of our analytical problem, which is to show that the main challenges to coordination and cooperation between auditors and policymakers. The final considerations present some procedures, found during the empirical research, aiming at a better coordination between the actors involved.

2. Brief Review of Literature

The main recent changes in the organs of control and auditing pointed out by international literature were the broadening of the scope of control and its politicization. The broadening of the control organs' range of actions, which meant the inclusion of evaluations of policy implementation, together the traditional verification of their legality, increased the political sensibility of their activities, that is to say, the political importance of the assessment produced by the audit body for the decision-making organs or positions responsible for government programs (Barzelay, 1997). This process is the result of the adaptation of the form and action instruments of the agencies of control that is external to the new arrangements and criteria for the performance of public administration, which were defined in the administrative reforms of the 1970s and 1980s. The control organs had to adapt to the new defining criteria of public administrative performance in order to supervise it, and these criteria ceased to refer to just legal compliance. They went further and included standards of quality in economic terms (efficiency) and of the effectiveness and impact of public action. This is how the current dual nature of the agencies arose: a control of legality and performance (Pollitt et al., 2008).

In Latin America, mechanisms of transparency and accountability are historically weak due to the origins and characteristics of the political institutions, marked by a strong legacy of patronage and authoritarianism (O´Donnell, 1998). But progress has been made over the last two decades in Latin America (CLAD, 2000; Bresser Pereira, 2004; Pinto & Flisfisch, 2011). In Brazil, we can indicate the reform and strengthening of control organs and the creation of laws for access to information, among others (Speck, 2002; Pessanha, 2003; Olivieri, 2010; Arantes et al., 2010; Loureiro e Teixeira, 2009).

3. Methodology

The result of this process is a system with various organizations, residing in the three Powers (Executive, Legislative and Judiciary), with the ability to exercise control over public administration in various spheres (political, administrative and judicial). Here also we can observe the same process of broadening control beyond legality to cover performance assessment and the politicization of audits, in the sense of increasing interference in the decision-making processes of public administration.

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The empirical data examined here was collected in 2011 and 2012 from source documents and in the course of interviews with employees from control institutions and heads of federal government organs under their supervision, using a methodology called "survey of the elite". Its purpose was to capture perceptions regarding the functioning of control institutions using the privileged insight of the system's central players at their different levels (Note 1).

The choice of a survey of the elite method is justified, on the one hand, on the basis of the scarce literature specifically dealing with control from a political and institutional standpoint as well as the way in which it routinely operates. Interviews, to a far greater extent than documents, also enable the transmission of knowledge on how institutions and control mechanisms work, as long as this functioning does not derive exclusively from existing rules, and there are practical dimensions and an organizational culture which may prevail over procedures or determine the ways in which they are interpreted and applied.

The survey of the elite is not by nature a sampling process. Rather, it is representative of the different perceptions of key players of the control system and federal public administration. Its objective, therefore, is qualitative, because it makes it possible to collect evaluations regarding the functioning of the system by central institutional players. Such evaluations, in spite of being partial, are extremely qualified owing to the experience of interviewers and their positions within the institutions. Sixteen in-depth interviews were carried out with professionals chosen in accordance with a combination of criteria relating to institutional position and professional experience in the area.

The choice of APF organs, in its turn, was made taking into consideration the diversity of the areas (purpose and means, in addition to social and infrastructure), the level of structuring of the ministries (oldest and most structured as well as the more recent and least organized of the organs) and institutional diversity (ministries, of direct administration, public companies and autarchies, of indirect administration).

Accordingly, of those subject to control we interviewed managers from five ministries (Education, Health, Social Development, Cities, Planning and President's Chief of Staff) and two indirect administrative entities–*INFRAERO* (public company managing airport infrastructure) and the National Department of Infrastructure and Transport (*DINIT*), an autarchy responsible for the operation and maintenance of the transportation system. Among the auditors, those interviewed were technicians from the CGU (Federal Comptroller General), the TCU (Federal Auditors Court), the AGU (Attorney-General of Brazil), the MPF (Public Prosecutor's Office) and the Congressional Budget Commission.

4. Incremental Advances in Control Institutions and How the Control System Is Structured

Is it adequate to speak of control system in the Brazilian political structure? The adoption of the system concept attributed to organs of internal and external control in Brazil as a whole can be justified not only for reasons of a legal nature–the constitutional text of 1988, in Article 70, defines it as such–but also for analytical reasons. Using the notion of system as an interrelated whole of elements interacting in performing a function, we can state that the control organs in Brazil constitute a system. Although problems of coordination with one another exist, as will be pointed out further on in this text, the various internal and external control organs of the Brazilian federal administration are interrelated in exercising their common activities, working with different means in order to make the various public agencies accountable for their actions and omissions.

From a formal standpoint, the control of the Brazilian Federal Administration (APF) is in charge of different entities, comprising a complex system made up of different organs with discrete powers and spheres of activity. Among these are the National Congress (CN), the external control organ (Federal Auditors Court–TCU), the internal control agency (the Federal Comptroller General–CGU), the organ responsible for defense and legal advice for the Executive Power (the Attorney General's Office–AGU), the Federal Prosecutor General's Office (MPF), and the Judiciary itself.

In other words, the control system is made up of agencies that are both internal and external to the Executive, which reflects the presidential system and the separation of powers. Both the Legislative, as well as the Executive have their own control institutions. The Legislature exercises classical political control over the Executive, with assistance from the TCU. The Executive, in its turn, maintains a system of internal control that is centralized in the Federal Secretariat of Internal Control (SFC) which is currently linked to the CGU. Although control of legality prevails in Brazil, the Federal Constitution of 1988 sets forth that control must also be exercised in relation to legitimacy and economic factors. There is thus a growing understanding that control should equally involve efficiency and the outcomes of government action.

As expected, the re-democratization that began in 1985 and the Constitution of 1988 led to institutional advances in all organs of control in the country, in terms of the qualification and structuring of their actions. While this is still ongoing, it is a slow and gradual process, as recent research indicates. Let us examine in slightly more detail the areas of external and internal control of the federal administration.

4.1 The Federal Court of Auditors-TCU–and Its Links to Other Control Institutions

Recent research has shown that not only the Federal Court of Auditors (TCU), but all the country's courts of accounts have in the last two decades undergone processes of organizational modernization and skills training of their technical staff (each of the 27 states of the federation has its own court, and some large municipalities do too). Careers in control were thus created, the transparency of their actions expanded and the sphere of these organs' actions broadened in the implementation of public policies. A large part of them already had information of public interest on their websites, opening themselves up to dialogue with various players in different sectors of civil society (Loureiro, Teixeira e Prado, 2008).

In addition to this, the 1993 law of public tenders (Law 8666/93) allowed any person to submit questions to the court of accounts pertaining to fraud in public procurement, a recourse that exponentially increased the number of cases and even altered the routines of the organ (the courts are obligated to investigate all cases brought by citizens). Congress began to insert provisions in the Budget Guidelines Laws (LDOs) that oblige the TCU to send congressional members information regarding the progress of federal projects every year (this occurred due to work by the Congressional Committee of Inquiry (CPI) on unfinished government projects, which between 1995 and 1996 identified various irregularities in the public works).

Other demands have also put pressure on the country's courts of account. The first refers to the Law of Fiscal Responsibility (LRF) which attributed to them the duty of supervising, through the emission of legal opinions, the limits of federal spending. The second has to do with the need to respond to complaints presented to the ombudsman, an area recently created in almost all courts. With regard to this series of changes and their impacts, it is here worth quoting the comments of one of the TCE's functionaries:

> *We've had to adapt due to changes in society, which now demands more transparency from the government. We've had to adapt due to this relationship with the National Congress and also because of a series of competences that are attributed by infra-constitutional legislation. The press today is impressive: not a day goes by that we don't have to talk to some organ of the press. This also increased the number of demands. (...) The Court therefore adapted, but this isn't visible to the outside population, also because the Court was not accustomed to showing itself, the Court was an institution closed in on itself.*

The TCU has in fact restructured its internal organization, as well as the professional requalification of its personnel, adapting them to meet the new demands. It has also undergone a reorientation of its oversight activities, which are now more centered on visits in the field rather than merely documentary analysis. New specialist areas have been created, such as the department dedicated to the analysis *in loco* of works financed by the federal government. It has also adopted new practices of operational auditing, with international standards, aimed at prioritizing the evaluation of the performance of public management, as well as the supervision of projects.

On the other hand, in 2000 the TCU created its parliamentary advisory service to deal with relations with the Legislature, and began to offer its reports and technical assistance to congressional members and to permanent committees. This preventive action, as well as allowing the improvement of the Court's relationship with the Legislative Branch, which is its main "client", was justified because the demands of the parliamentary committees made to the TCU were considered to be poorly formulated, imprecise and difficult to pass forward. To reconcile the congressional members' demands with its own capability, the TCU began presenting, through its Parliamentary Advisory Service, its "portfolio" of projects, so as to encourage committees to make demands on the supervision that was already being undertaken. In this way, it sought to improve its service to the National Congress and retake supervision over its own work routine.

The definition in the TCU's strategic planning of the goal to strengthen relations and partnerships with Congress is a positive indicator of the close relationship between the two strongest external control organs of Brazilian bureaucracy. Nevertheless, this effort comes up against the relative disinterest among members of Congress relating to questions of control, a behavior that still prevails as a general rule, because few congressional members see this attitude as a politically viable platform. In the view of career bureaucrats in Congress, there are individual initiatives from someone's favoring control, mainly through demands for information, but the Brazilian Legislative Branch in general makes little use of the structure of the TCU to supervise the APF. Despite the relative disinterest on the part of Congress, institutional relations between the two organs have gotten closer, allowing for optimism in terms of the coordination of their actions to foster transparency and responsibility in public administration.

In summary, the relationship of the TCU with Congress has become closer, whether by way of demands from Congress in the area of supervision of public works, or because of efforts by the Court to adapt to the requirements and demands of the parliamentary committees.

Over the last two decades the TCU has also straitened its relations with the Public Prosecutor's Office–MPF. The attorneys have become energetic petitioners of supervision and auditing, as they have a small team of auditors. These closer ties resulted from a TCU initiative. Similar to the work done with the congressional members, the organ presented the attorneys with its "products" (audit and supervision reports). Despite this, difficulties between the two organs still remain and have to do, according to the auditors, with the autonomy of the MPF, together with the technical deficiencies with regard to the functioning of public policies. The creation of the Control Network in 2009 seems to be improving the articulation between the actions of the organs, as the agreement between the TCU, MPF and the Federal Police bears witness. This partnership established a minimum common scope for audits carried out by the three bodies, in such a way that the work of one institution can be used by the others in cases where all are investigating the same project or activity, thus eliminating duplication.

The relations of the TCU with the Federal Comptroller–CGU are of fundamental importance, since rendering accounts–the main input of the TCU's works done by the Comptroller. The contact is broad and constant, in the view of the TCU workers–there is no overlap between the work of the two organs, with the boundaries of each being well defined. Nevertheless, the formal initiatives of inter-institutional cooperation are still recent and the result is still little known (Note 2).

4.2 Internal Control: The Emergence of the CGU as a Central Organ for Internal Control

The Federal Comptroller's Office–CGU is a recent creation in the country's institutional scenario, having arisen in 2003 at the beginning of Lula's first presidential mandate. It centralizes the internal control of Brazil's public federal administration and has performed the role of a platform upon which to build Brazil's democratic order, with an area of operation that extends well beyond a mere organ of internal control, and includes other functions, such as combating corruption, monitoring public policies and promoting transparency. As one of its more innovative aspects, it has played an important role in the mobilization of civil society, capacitating it for the exercise of the function of social control of the governing classes (Loureiro et al., 2012).

The creation of the CGU also represents an institutional innovation in the control process of government in Brazilian democracy for various reasons. Firstly, because it reorganized the internal control of the Federal Public Administration (APF), centralizing it into an organ with ministerial status. Until 1994 internal control was fragmented with a department that had little efficiency within each ministry (the Internal Control Secretariats, known as CISETs). This reorganization involved, as well as organizational centralization, an expansion of activities also for monitoring federal public policies carried out in bodies at the sub-national level, through supervision in municipalities with federally financed projects (Olivieri, 2010).

In second place, the creation of the CGU consolidated the expansion of internal control activities for promoting quality administration, thereby going beyond the traditional control of legality. Parallel to this, the CGU became Brazil's "anticorruption agency", responsible for sanctions against administrative impropriety and for the promotion of transparency in the APF and the fostering of ethics and integrity (Corrêa, 2011). In addition, it encouraged the dissemination of internal control to governments at the sub-national level, which are creating their own controllership bodies.

Last, but not least, the CGU began to act as a body that encourages and strengthens social control, in other words, the participation of civil society in controlling public administrations, thereby contributing decisively to the institutionalization of this process through various initiatives, such as the technical training of councilors and the initiative to organize conferences on social control (Loureiro et al., 2012).

5. Challenges for Coordination between Control and Management

5.1 Sharing Objectives for Cooperation between Controllers and Those Controlled

Considering that control is not an end in itself, but an instrument for improving the management of public policies, its purpose and modalities should be defined by the Public Administration together with the control bodies, both respecting their constitutional attributes and their operating specificities. In other words, control institutions cannot only be developed in response to their own needs and ignoring the particularities of ministries in terms of improving their management. Sharing goals is of paramount importance, as both supervisors and the supervised need to bear in mind that the function of both is to ensure the legality and efficiency of the use of public funds.

Therefore, overcoming mistrust and the establishment of constructive dialogue resulting in benefits for both depend on investment in agreements based on common objectives and guided by respect for legality and the search for greater efficiency in the management of public policies.

The most decisive factor for the appearance of cooperative practices between controllers and the controlled is the existence, in the controlled bodies, of their own audits and/or internal ability to monitor the implementation of their programs. The more consolidated these practices, the greater the chances of dialogue, with the controllers contributing towards improving management quality. It is thus more likely that conflict and tension in the auditing and supervision processes will arise in organs or ministries created more recently, or those that have had to operate programs at a national level without a decentralized organizational structure.

Moreover, interaction between control and management in these ministries will contribute to the detailing of programs that are normally formulated in a more generic manner, by specifying stages and procedures for their implementation. As will be shown below, this interaction will also foster the designing of intergovernmental and intersector coordination mechanisms, even leading to the definition of performance evaluation criteria.

The absence of rules formalizing the link between management and control can make the collaboration relationship more tense and problematic. In those organs with a longer period of institutionalization, there are signs that the space for dialogue with the supervisors is already more consolidated, in many cases having their own organs for internal control which facilitate dialogue between supervisors and the supervised. These more recent ministries, especially those that deal only, or as a priority with decentralized resources, often view problems pointed out by control bodies in their auditing as obstacles to the development of their actions, and not as suggestions as to how policies or monitoring and evaluation mechanisms could be improved. The direct consequences of this situation are generally audits/supervision that point to a series of problems that reflect only the observations of the supervisor, but find no support in the concerns of the administrator.

The following examples illustrate these formulations. An interviewee in the internal control department in the Social Development Ministry, created in 2003, at the beginning of President Luis Inacio Lula da Silva's first mandate and the central nucleus of his agenda in the social area, relates a positive control experience. Despite criticizing the amount of rework demanded of him, rendering accounts on the same issue for different control organs, he was able to a build a collaboration relationship with the control area: after long discussions with auditors from the TCU, his department was able to reach a consensus over the composition of the Decentralized Management Index (IGD), an indicator to demonstrate the administrative quality of the *Program Bolsa Família* (Family Allowance - an income transfer program). After long disagreements between his department and the TCU auditors, both decided to establish a dialogue and ended up building an indicator that reflected the expectations of the area supervised and included the concerns of the control body, thereby fostering a greater management capacity for the Ministry itself. In this case, the concerns of the supervisor went beyond mere observance of the legality, which contributed to broadening the vision of the TCU itself on how to evaluate the public policy in question at the time of its audits.

Similar situations have been repeated in other federal government organs, such as in the Transport Ministry, in which the routines involved in contracting public works and of monitoring resources were altered because of suggestions made by the control bodies or by way of dialogue of the latter with the managers. According to another interviewee, the decisions of the TCU to forbid hiring relatives for outsourced contracts produced a good result: they ended once and for all the occurrence of this frequent practice. There was also considerable improvement in engineering work public tenders with the incorporation of the recommendations contained in the TCU accords, which were sent to all personnel by corporate e-mail and made available for consultation by the managers.

Faced with excessively formalized control, also according to the managers, various expenditure takers in the different ministries are fearful of signing projects or authorizing expenditure due to action by the control bodies, which prioritize excessively formal aspects, even in situations in which there is no loss to public coffers or that where motivated by the need to make policy management more efficient.

In fact, a large part of the interviewees point out the absence of a consensual definition over what should be the object of control, in other words, controllers and those controlled have differing views about the purpose of control activities and the way in which they should be carried out. Obviously, no one is suggesting that those subject to control should define the parameters or the instruments of the supervision and auditing. But one would expect that a minimum degree of agreement regarding objectives and the way audits should be carried out could be established, in such a way that those being controlled feel themselves impelled (not just obliged) to collaborate with the supervision and that control does in fact lead to improvements in management.

In short, if control is not an end in itself, but is as necessary as good public management in a democratic order, the dialogue between controllers and managers, and the coordination of their actions are practices of fundamental importance. Not only does the language between them need to be fine-tuned, but also sharing the goal of reaching the greatest efficiency for public policies is indispensable. It is also fundamental that the "internal affairs culture" with its practices of punishment on the part of the auditors and, on the part of the managers, the view that "control interferes with management" must end, These mistaken conceits make finding paths to coordination difficult and prevent mutual learning through dialogue and shared experience.

5.2 The Building of Cooperation Mechanisms between Management and Control

Two subjects relative to cooperation between control organs may be highlighted: defining the scope of the control of legality and the creation of institutional mechanisms for generating cooperation.

With regard to the first topic, it appears that today there is a clear consciousness among members of the internal control body that formal controls demand time and do not necessarily produce results in terms of efficiency in public policies. Ultimately, the ideal would be to reduce them or do away with certain procedures where there is a low cost-benefit ratio (cost of control and benefit in terms of the quality of management). In other words, controlling of legality should not be totally abandoned, but it is necessary to assess by how much the registers founded solely on legality produce substantial benefits for the effective performance of public services.

In relation to the second topic, on the other hand, there are certain actions that are aimed at cooperation. The External Organ Monitoring and Service Permanent Committee was created within the TCU with the function of "coordinating, monitoring and dealing with administrative procedures involving the TCU, the CGU and the Chief of Staff to the President of the Republic and other external organs of control" This committee's objective is to render the procedures more efficient for the resolving the more than one hundred cases initiated by the TCU which have paralyzed important public activities, such as large-scale construction work, in addition to lending support to officials being investigated by the control organ.

Indeed, the External Organ Monitoring and Service Permanent Committee has led to a significant reduction in the volume of pending cases in the TCU to bring about greater compliance by the controlled organ in terms of suggestions for external control, or even the scope of negotiated solutions between both. The Committee has also given managers more institutional security for their decisions.

In addition, the Committee has looked for solutions for the specificity of purchases in particular areas of public administration. The adoption of fixed parameters to evaluate the price of the public construction work is very important and has caused a great many conflicts between controllers and the controlled. Presently, the organs of control adopt, as a parameter for evaluating the cost of a project, the table of the National Survey System of Civil Construction Costs and Indexes (*SINAPI*), jointly produced by the Caixa Econômica Federal (a public bank) and the Brazilian Institute of Geography and Statistics (IBGE). Based on prices featured in the SINAPI, the TCU determines whether the price of a project has been appropriately estimated or whether the invoices have been fraudulently inflated, something which has given rise to questions from sectors in the public administration, such as the aerospace and petroleum industries and road construction and repair. They claim that the *SINAPI* only includes prices of civil construction material and does not consider the specificities of products used in very specific activities and projects such as those conducted by Petrobras and by Infraero, and for that reason disagree on the irregularities pointed out by the controlling organs. Recognizing the specificity of airport construction work, a committee was formed in conjunction with the Caixa Econômica Federal and the TCU in order to discuss the construction of a SINAPI exclusively for the aircraft sector. The petroleum sector is also proposing the same solution.

If such examples prove that dialogue can assist in overcoming differences, it should be clear, however, that it is not sufficient for the adequate functioning of the system of control and improvement in public administration. It is only with the due institutionalization of arenas of coordination between management and control organs, the establishing of clear and specific criteria of evaluation for the different administration organs, which respect their diversity, that there will be greater affinity between the objectives of control and management.

5.3 Coordination between Internal and External Control Organs

Difficulties in coordinating control activities manifest themselves chiefly in relations between internal and external control. Despite enjoying the autonomy to plan its supervision activities, the SFC does not define its activities entirely independently of the TCU. Even being an organ of the Executive, therefore, without an institutional link to the Legislative, or to the Federal Court of Accounts, the Constitution tasks the SFC with supporting external control. This support is provided mainly by means of all managers rendering accounts, which are organized and systemized by the SFC, and forwarded to external control.

The MPF is another important component of the control system. Those interviewed belonging to the TCU and CGU recognize the importance of the MPF in supervising the activity of public agents and the application of resources, as well as seeking legal action in cases in which crimes against public property have been determined. Nevertheless, many point to the difficulty in holding a systematic dialogue with the institution, given that freedom of action by the prosecutors obstructs mechanisms of cooperation with all members of the MPF, which does not, however, rule out institutional cooperation between the organs.

With regard to those controlled, their perception of MPF activity is more partial and conditioned by their restricted contact with the institution: the managers generally consider the MPF to be just one more organ demanding information (obliging the organ to divert working hours from its core activity to deal with its requests, which are all too often repeated by other control organs. In many cases they point to the lack of knowledge of prosecutors of how public policies function and the part played by managers, which leads them to requesting information that is difficult, if not impossible to provide. Here once again, the need arises for coordination between control organs in order to avoid this extra workload for managers, while at the same time ensuring that all the information is provided in the supervisory and/or investigatory processes.

If on the one hand managers within the ministries recognize that the importance of control over legal procedures cannot be neglected–their abandonment would be reckless and would open the doors to all kinds of irregularities–they do, however, criticize the excessive preoccupation of auditors with the formal dimensions. They believe that formalities that do not constitute corruption or a deliberate intent to cause damage to public coffers should not constitute a source of obstacles to the continuity of policies. In these cases, even when the objective of the audits is to preserve legality and increase the efficiency of management, the effect on the latter is practically null, and the risks of seriously affecting the rendering of important services and causing prejudice to the population are very high.

6. Conclusions

The empirical material analyzed here allows us to point to certain measures to foster coordination, and thereby improve the quality of control and of management:

1) Development of a continuous dialogue between the organs of control between themselves and with society, to clarify the content of supervisory reports and to avoid possible confusion between problems of corruption and failures in management (society should be enlightened as to the difference between the two);

2) Creation of effective institutional coordination mechanisms between organs of control and between controllers and those controlled, by means of the standardization of common procedures and the sharing of information systems. It is important to establish a regular forum for coordination, with executive departments, and which involve controllers and those controlled, with the goal of creating clearer control criteria, balancing the goals of management with those of democratic supervision;

3) Institutional strengthening and the qualification of the workforces of ministries' internal control advisors, by setting up collective structures that combine the ministry's sectorial expertise with expertise in supervision and auditing;

4) Creation of mechanisms to foster integration between the CGU and the ministries so that the results of internal audits provide feedback for the planning process. Control must regain its role of auditor of government programs, helping the ministries improve their public management, and the administration organs need to qualify and gear themselves up for using the results of audits as one more instrument working for public management.

5) Creation of arbitrage chambers between control and management organs. Institutional mechanisms for solution of doubts and questions between managers and auditors arising during inspections and audits are still practically non-existent. In other words there are no means for solving an irregular situation. Suggestions from those interviewed indicate that the control organs could have a legal instrument, similar to the term of conduct adjustment, which would provide an opportunity to correct faults before having to register the irregularity. In the current situation, the supervisor is unable to escape from the position of non-cooperation or just saying "nothing can be done": the controller *has* to register the irregularity (under pain of shared responsibility), and there is no instrument allowing the manager to correct the irregularity before registering it. What is more, there is a legal problem of how to attribute to the auditor discretionary power over which problems should be considered "summarily" and over which he should and could allow the manager to carry out corrections.

6) The arbitrage chambers could include among their attributes the problem of identifying responsibility for irregularities. As the TCU requires that the CGU indicate those potentially responsible for registered irregularities, but the Controllership Department has no instrument with which to make this identification with precision at this stage of the inspection, it ends up appointing the head of the managing institution or the whole chain of decision-makers, which will probably do someone an injustice.

The development stage of the control system in Brazil allows us to state that it is aligned with recent trends as regards the institutional advance of control bodies and in its direction taken toward promoting democracy and good public service performance. These advances are undeniable in Brazil's recent democracy, but this process is incremental and marked by corrections along the way.

The multiplicity and diversity of control organs and actions are features of our institutional system, directly related to the principle of mutual controls between the Powers inherent to a presidential regime. These features are not in themselves negative attributes, even though they cause difficulties when it comes to coordinating. On the contrary, the diversity of institutions is the result of the demands of checks and balances and, at the same time, one of the mechanisms for achieving a balance between the Powers.

The plurality of control bodies does not constitute a failure of Brazil's system of controls, but it does require the building of forms of coordination between its activities and institutions and the coordination of control practices with the objectives of management. Without these coordinating instruments, institutional fragmentation will result in faults both from the viewpoint of accountability and from the perspective of the managers' actions.

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Notes

Note 1. We use the term “elite” with the meaning of “leaders” who play a significant role in society and/or the State and whose identification is made by formal criteria within a given hierarchy or by reputation and influence in the public domain, as has already been adopted in other researches (Lamounier & Souza, 1992, p. 9).

Note 2. The examples on the site of the TCU are: the Control Network (2009), cooperation agreements with the state courts of accounts (made over the last ten years), with the Public Prosecutor’s Office (2002), and with the AGU and the CGU.

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An Asset for an International Investor: The Colombian MFIs

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Abstract

The present paper aims to contribute to the framework of knowledge on Colombian system of microcredit, taking as perspective an investor who collects on international market through the issue of bonds in order to finance microfinance institutions in Colombia. In this way we want to show how microcredit can be fed by international markets who see this form of investment as an opportunity to raise yields. To realize this there is a financial system with high specialization on microcredit institution and the need for funding by the institutions themselves. The paper analyzes the system of microcredit as a whole and then moves onto the observation and consequent determination of economic and financial variables of Microfinance Institutions (MFIs).

Keywords: microfinance institution, carry trade, microcredit system, international investor

1. Introduction

Among the Latin American countries, Colombia has a micro-financial system very consolidated, in fact, a large number of NGOs offer microcredit, but there are also banks and regulated institutions. The study shows that the rates charged on microcredit are higher than interest rates on other financial products: the main explanations are due to the high risk implicit in the activity of micro-credit, high cost of finance and the high operating costs associated with the microcredit and the need to overcome the lack of funding sources which are low-cost deposits. With regard to Colombia, microcredit is not particularly risky, and the level of bad loans is not significantly higher than that of other financial products. To demonstrate this, after a survey of literature review, we estimated the potential investment that it represents for an international investor. In particular, methodologically, we have carry out an analysis of the financial structure for each Microcredit Institutions, reconstructing the values of loans, deposits and equity capital and calculating the following indicators:

- Net requirement of the loans portfolio= Credits – Deposits – Equity
- Net requirement ratio = (Loans – Deposits – Equity) / Loans

These indicators allow to identify those potential companies where international investor could direct its activity.

2. Literature Review

The microfinance market in the countries of Latin America is one of the oldest and most developed (Miller, 2003), covering a very important role within the financial sector. Although it is characterized by a myriad of institutions different in size and performance, it still has common features. The MFIs may be defined as a group of organizations that have found innovative and new methodologies to overcome a number of problems related to loan (Vanroose, 2008), financial development, in fact, in developing countries, has been pursued, also through an intense process of liberalization and globalization of commercial banking services (Hanson, 2003; Cull & Martinez Peria, 2010). Increasingly, microcredit has been regarded as an extremely useful tool to provide access to credit to every section of the population traditionally discriminated by ordinary banks. Economists have theoretically justified the granting of the loan by microcredit institutions in relation also to the high rates charged (Besley & Coate, 1995; Stiglitz, 1990; Varian, 1990). Part of the literature argues that Latin American MFIs are more trade-oriented than their colleagues in Africa and Asia (Lapenu & Zeller, 2001; Ramirez, 2004; Vanroose & Armendáriz, 2009). It is also interesting the point of view of Bateman (2013) who believes that microfinance is contributing in some way to the de-industrialization of the country in South America. Janda et al. (2014) instead lead an analysis designed to determine an approach to the setting of interest rates by the institutions of micro finance. Essentially they attempt to tie the rate with different macroeconomic variables. The microcredit also plays a major role in Colombia, a country in which micro, small and medium enterprises have great impact on the employment situation (Chamorro-Narvaez, 2012). Considering the growing development, a new field of investigation can be found, a field that is aimed at mutual funds and their strategies. Given the high rates charged by microfinance institutions, an investment in such companies by specialized funds could be attractive for two mainly reasons: low correlation of micro finance institutions with the trend in global capital markets, and therefore good diversification opportunities (Krausset et al., 2009); carry trade practice is treated also by Nucera et al. (2013). They highlight the use of this technique by hedge funds in order to generate extra return. In this paper we will focus on this issue, analyzing the Colombian situation. The carry trade is a very topical theme in the scientific literature, Galati et al. (2012) argue that in an economic environment, in which interest rate differentials have been a driving force of the movement in exchange rates during recent years, the possible settlement of open positions could adversely affect financial stability. Plantinet et al. (2011) support a similar argument, which defines carry trade as an important element in the financial stability.

3. The Analysis of Microcredit System

The Colombian financial system is represented by two main banking institutions that have public nature:

- *BANCOLDEX* (C RADE Bank of Foreign of Colombia), that is the development bank in the system. It guides the productivity of the entrepreneurship toward the innovation, modernization and internationalization.
- *Banco de la Rep ù Republic* (Banc in the Republic of Colombia), which is the Central Bank of Colombia, with powers of supervision over the country's financial system.

The private sector of lending to businesses and to households consists mainly of commercial banks and microfinance and leasing institutions, with asset portfolios that are distributed, as we can see in the following table, according to the total of enterprises that belong to the private sector of lending.

Table 1. Distribution of ordinary activities of credit and microcredit

Private lending sector	June-2013		June-2014		Annual real growth rate
	Billions of pesos	%	Billions of pesos	%	
Portfolio	*140,32*	*89,42%*	*152,58*	*97,23%*	*8,74*
Commercial	132,4	84,37%	143,82	91,65%	8,62
Microcredit	7,91	5,04%	8,76	5,58%	10,73
Financial Leasing	*15,91*	*10,14%*	*16,48*	*10,50%*	*3,55*
Commercial	15,91	10,14%	16,47	10,50%	3,57
Microcredit	0,01	0,01%	0	0,00%	-38,47
Securities	*0,69*	*0,44%*	*0,8*	*0,51%*	*16,19*
Total	*156,92*	*100%*	*169,86*	*100%*	*8,25*

Source: Ourelaboration on Banco de la Repùblica data.

About the ownership of financial products by customers, in the third quarter of 2014 there are 23,239,287 customers that have one financial product at least, an increase compared to the same period last year, in which the holders of financial products amounted to 21,791,836. Compared to the total population, therefore, the index of *"banked"* estimated for the third quarter of 2014 amounted to 72.6%, against 69.3% a year earlier. In particular, the number of people who have at least a financial product is shown below, also according to the type of product that they possess. It is also represented the growth in the years for each type of product.

Table 2. Number of people with at least a financial product and growth in September 2013-2014 and June 2014-September 2014

	Number of people with financial products				Growth	
	2011	2012	2013	2014	sept 13-sept 14	June 14-sept 14
Saving account	18,022,079	19,299,813	20,096,322	21,622,624	7.6%	2.8%
Bank account	1,438,659	1,498,835	1,528,229	1,540,834	0.8%	0.8%
Consumption	4,243,059	4,851,998	4,997,868	5,471,422	9.5%	2.4%
Loan	716,739	761,130	820,592	873,878	6.5%	1.4%
Microcredit	1,484,261	1,677,273	1,762,437	1,834,924	4.1%	4.8%
Credit card	5,499,377	5,908,598	6,494,279	7,006,889	7.9%	2.3%
Electronic filing		455,145	1,763,118	2,089,875	18.5%	2.7%

Source: Our elaborate onAsobancaria-CIFIN data.

The same situation is also reported for the companies that own at least one banking product. It is also showed the growth of companies that own each type of product in the periods September 2013-September 2014 and June 2014-September 2014.

Table 3. Number of firms with at least one financial product and growth in September 201-2014 and June 2014-September 2014

	Number of enterprises with financial products				Growth	
	2011	2012	2013	2014	sept 13-sept 14	June 14-sept 14
Saving account	311,382	317,559	383,396	415,661	8.4%	0.7%
Bank account	310,828	307,517	307,517	366,666	19.2%	0.7%
Commercial	148,102	163,644	180,765	186,070	2.9%	2.0%
Consumption	65,042	66,332	72,577	73,968	1.9%	-0.7%
Microcredit	8,323	8,863	6,496	7,866	21.1%	5.2%
Credit card	68,583	69,522	77,049	83,238	8.0%	1.1%

Source: Our elaboration on Asobancaria-CIFIN data.

Regarding micro-enterprises, 51.7% asked mainly microcredit loans, 24.8% called for trade receivables, 15.3% asked for consumer credit and 8.2% asked for other types of loans (8.2%), including credits for the purchase of a vehicle or loans for house purchase. In addition, the percentages for the different types of amounts required by microenterprises are distributed as follows for economic sectors:

Table 4. Structure of the type of credit required by the micro-economic sectors of commerce, industry and services (2014)

Sector	Type of Credit (%)				
	Microcredit	Consumer Credit	Commercial credit	Other	Total
Business	50.8	14.6	27.9	6.7	100%
Services	55.4	16.8	19.9	7.9	100%
Industry	51.6	18.9	23.6	5.9	100%

Source: Our elaboration on DANE data.

The companies that operate in the market of credit belong to four different categories: banks, cooperative banks, non-governmental organizations (NGOs) and non-banking financial institutions matrix (NBFI). The categories in which are divided the Colombian credit institutions (banks, cooperative banks, finance companies, NGOs) are each regulated by different rules. Banks are subject to the supervision of the *Superintendencia Financiera Colombiana (SFC).* In particular, this institution oversees both on the banks and on some co-operative institutions, in order to protect the savings of the undifferentiated public, to preserve the integrity of the financial system and the interests of individuals and institutions. In addition to the ordinary laws that govern other cooperatives, for the cooperatives of savings and credit *(Cooperatives de ahorro y crédito–CAC)* there are special laws and decrees. From an organizational standpoint, the CAC in Colombia are independent institutions, as in most Latin American countries, while in some of them (for example, Bolivia, Chile and Panama) cooperative institutions are integrated into a Ministry as Districts. In other countries (Brazil, Mexico and Peru) CAC do not exist. In Colombia there is an institute dedicated to security of the cooperatives. It does not matter what activity the cooperatives perform. This institute performs the same functions of the *Superintendencia Financiera* on banks and it is represented by *Supersolidaria (SES),* which monitors on cooperatives that are not covered by the supervision of the *Superintendencia Financiera.*

The NGOs are now unregulated corporation and therefore they are not supervised by *Superintentencia Financiera* and they are included within the so-called "third sector", that is complementary to the first two traditional sectors, that are private sector with profit goals and public sector. NGOs are in the form of foundations, cooperatives, associations and non-profit corporations, whose social objective is to foster the development of the whole community. These institutions, more and .more numerous in Colombia and in general in Latin America, play a very important role: in fact, they offer micro-loans to the most disadvantaged part of the population that cannot call on banks *(unbanked population),* The unbanked population is mostly represented by rural population that works in agriculture. So the interest rates charged by these companies are often very high, even higher than bank rates. This is due to two main reasons: the first is that clients of microcredit NGOs offer no guarantees, but the loans are assigned evaluating the temper of the person, the second is that the banks have special tax breaks that are not designed for this type of institutions (the application of 19% VAT on interest rate).

Although NGOs are not supervised by the *SFC,* but some years ago a regulatory process with the aim of promoting transparency of the same NGOs started. For this purpose it has been established many associative networks in which NGOs can converge, which include, for example, the *Red de ONG por la Transparencia,* the *Federación de Antioqueña NGOs* and the *Confederación Colombiana de NGOs,* which are intended to promote the development of the most disadvantaged areas of the country and decrease of the poverty rate. The various institutions are present in the country, through subsidiaries and branches, according to the distribution shown in the table below, in which institutions are divided by their position. Institutions may be present in city or rural areas.

Table 5. Distribution of various types of credit institutions in rural and urban areas (2013)

	Physical coverage by type of institution									
	Banks		**Financing companies**		**Cooperative**		**NGOs**		**Total**	
	Branches	**Agencies**	**Branches**	**Agencies**	**Branches**	**Agencies**	**Branches**	**Agencies**	**Branches**	**Agencies**
City	7,868	1,328	732	29	34	377	1,315	308	9,949	2,042
Rural	37,132	4,070	3,413	628	10	570	813	292	41,368	5,560
Total	*45,000*	*5,398*	*4,145*	*657*	*44*	*947*	*2,128*	*600*	*51,317*	*7,602*

Source: Our elaboration on DANE data.

The highest concentration is in the capital of Colombia, Bogota, where there is 37% of the total, and in a few other districts, including Antioquia with 10.4%, Valle del Cauca, also with 10.4%, Santander with 6%, Cundinamarca, and Atlántico with 5.4% and 5.1%.

The contact points per 10,000 inhabitants per department are located throughout the area with roughly the same distribution of the contact points just analyzed, with some differences. In particular, the department with the highest number of points of contact for 10,000 inhabitants is Bogotá with 34 contact points, followed by Santander with 21, both Casanare and Risaralda with 19, Valle del Cauca, Meta, Cundinamarca, and Atlántico with 16 and then all other with a smaller number of contact points per 10,000 inhabitants.

According to the division of institutions that provide microcredit services, we have the distribution of the portfolio of credit to microenterprise for each category of institution. The microenterprise credit coincides with microcredit, because microfinance is considered as the total of financial services oriented to the development of small economy, especially micro-enterprises. In particular, in the following table we show the participation of entities supervised by the *Superintendencia Financiera*, the participation of NGOs and the participation of cooperatives supervised by the *Superintendencia de la Economia Solidaria*, which contribute to the portfolio of microcredit respectively 73.78%, 18.57 % and 7.65%.

Table 6. Microcredit portfolio by type of institution (December 2014)

Credit Portfolio for Microenterprise (In thousands of pesos)			Participation (%)
Type of institution supervised by Superfinanciera	Agricoltural Banks	5,183,718	56.63%
	Other banks	3,382,630	36.95%
	Financial companies	465,166	5.08%
	Cooperative	119,614	1.31%
	Leasing of Microcredit	3,131	0.03%
Microcredit of Superfinanciera (with Cooperative Financial and Leasing)		9,154,259	73.78%
NGO		2,304,392	18.57%
Cooperative of Supersolidaria		949,453	7.65%
Total Portfolio of Microcredit		*12,408,103*	*100.00%*

Source: Our elaboration Superintendencia Financiera de Colombia, Superintendencia de la Economia Solidaria, Confecoop, ConseioSuperior de la Microempresa.

4. Geographical Distribution of Credit Products

We analyzed the geographical distribution of the credit for each District in the years 2012 and 2013 and the related percentage change, and also the partition of credit for products type in the same years. The values are sorted from largest to smallest considering the size of the gross portfolio of districts. It can be seen that the highest concentration of loans of each type is located in Bogota, the Capital District (45.3% of the total gross portfolio in Colombia in 2013), followed by Valle del Cauca, Atlántico and Santander. In the charts we report only the top twenty districts, as recorded by the most significant results.

Table 7. Distribution of the Portfolio gross and credit products for the department (2012-2013) and percentage Δ

Districts	Gross portfolio (in millions of pesos)			Microcredit (in millions of pesos)			Ordinary credit and leasing (in millions of pesos)		
	2012	**2013**	**Δ %**	**2012**	**2013**	**Δ %**	**2012**	**2013**	**Δ %**
Bogotá D.C.	109,097,945	124,400,309	14.03%	783,081	844,084	7.79%	69,924,936	78,920,234	12.86%
Valle del Cauca	21,516,274	24,671,808	14.67%	537,173	573,915	6.84%	13,763,391	15,733,177	14.31%
Atlántico	15,722,538	15,897,409	1.11%	1,163,468	1,176,408	1.11%	10,628,435	10,746,648	1.11%
Santander	9,812,288	11,510,776	17.31%	432,706	532,338	23.03%	5,589,176	6,600,828	18.10%
Bolívar	4,881,122	5,581,612	14.35%	134,185	171,358	27.70%	2,852,130	3,193,363	11.96%
Cundinamarca	3,885,811	4,819,904	24.04%	553,594	644,739	16.46%	1,142,619	1,390,774	21.72%
Tolima	3,688,975	4,237,916	14.88%	333,027	382,839	14.96%	1,592,596	1,841,823	15.65%
Risaralda	3,422,760	4,019,430	17.43%	108,801	119,215	9.57%	1,680,185	2,032,356	20.96%
Huila	2,883,421	3,268,786	13.36%	456,396	528,975	15.90%	1,094,492	1,222,140	11.66%
Meta	2,882,416	3,315,360	15.02%	189,113	237,133	25.39%	1,297,306	1,484,933	14.46%
Caldas	2,822,138	3,225,954	14.31%	170,437	195,486	14.70%	1,320,910	1,597,780	20.96%

Norte de Santander	2,648,650	3,003,941	13.41%	228,298	261,728	14.64%	945,646	1,054,816	11.54%
Córdoba	2,189,168	2,577,495	17.74%	189,584	240,091	26.64%	1,013,190	1,112,444	9.80%
Boyacá	2,164,630	2,551,215	17.86%	0	0	0.00%	839,241	993,630	18.40%
Nariño	2,016,506	2,344,282	16.25%	468,422	551,587	17.75%	600,448	715,217	19.11%
Magdalena	1,798,327	2,125,682	18.20%	190,623	225,322	18.20%	708,541	837,519	18.20%
Cesar	1,623,531	1,875,329	15.51%	154,274	175,441	13.72%	575,046	642,180	11.67%
Quindio	1,283,807	1,472,179	14.67%	68,386	74,705	9.24%	464,940	543,477	16.89%
Cauca	1,145,962	1,423,620	24.23%	186,957	256,571	37.24%	350,446	423,911	20.96%
Casanare	921,905	1,147,067	24.42%	85,397	109,496	28.22%	356,681	448,615	25.77%
Sucre	905,888	1,043,300	15.17%	98,141	120,204	22.48%	340,501	385,408	13.19%
Caquetá	665,325	754,481	13.40%	132,491	162,102	22.35%	211,660	221,332	4.57%
La Guajira	592,560	684,238	15.47%	61,302	67,231	9.67%	141,224	163,665	15.89%
Arauca	352,420	410,385	16.45%	61,723	71,204	15.36%	108,703	130,880	20.40%
Putumayo	298,221	350,157	17.42%	88,434	111,962	26.61%	52,919	62,980	19.01%
Chocó	259,258	300,016	15.72%	26,625	39,577	48.65%	47,745	50,021	4.77%
San Andrés Y Providencia	240,284	270,270	12.48%	2,235	3,020	35.12%	127,949	138,916	8.57%
Amazonas	98,417	118,522	20.43%	1,406	1,821	29.52%	22,186	28,608	28.95%
Guaviare	75,382	84,331	11.87%	17,588	20,962	19.18%	25,322	24,987	-1.32%
Vichada	56,479	61,693	9.23%	8,645	9,831	13.72%	13,083	12,924	-1.22%
Antioquia	46,487	52,192	12.27%	697	818	17.36%	33,681	37,485	11.29%
Guainia	2,405	2,959	23.04%	1,181	1,923	62.83%	924	777	-15.91%
Vaupés	1,688	2,656	57.35%	711	1,512	112.66%	535	638	19.25%
Other	42,084,000	47,060,421	-	192,709	450,549	-	35,180,021	38,389,754	-
Total National	**242,086,987**	**274,665,695**	**13.46%**	**7,127,809**	**8,364,148**	**17.35%**	**153,046,808**	**171,184,240**	**11.85%**

As shown Microcredit follows only partiallya geographical distribution similarto distribution of other products and total gross portfolio. The distribution for department is the following:

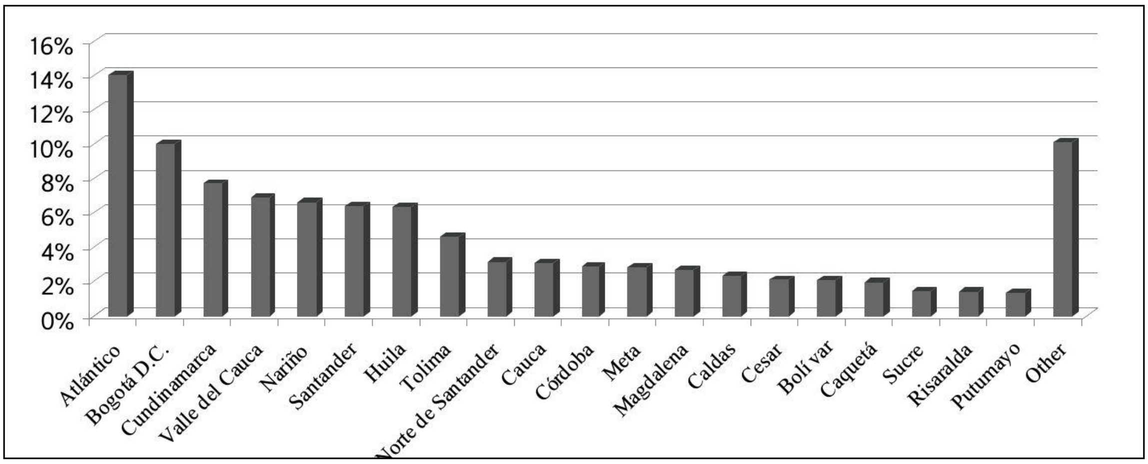

Figure 1. Distribution of the Portfolio of the department for microcredit (in%)

Source: Our elaboration on DANE data, Superintendencia Financiera de Colombia, the Superintendencia de Economia Solidaria.

The districts in which microcredit is better developed, as can be seen from the chart, are Atlántico, Bogota, Cundinamarca and Valle del Cauca and, therefore, the situation reflects the geographic concentration of the portfolio gross. As regard the composition of the gross portfolio, it follows the distribution of Microcredit with Bogotà at 45.29%, Valle del Cauca 8.98%, Atlantico 5.79% and Santander with 4.19%.

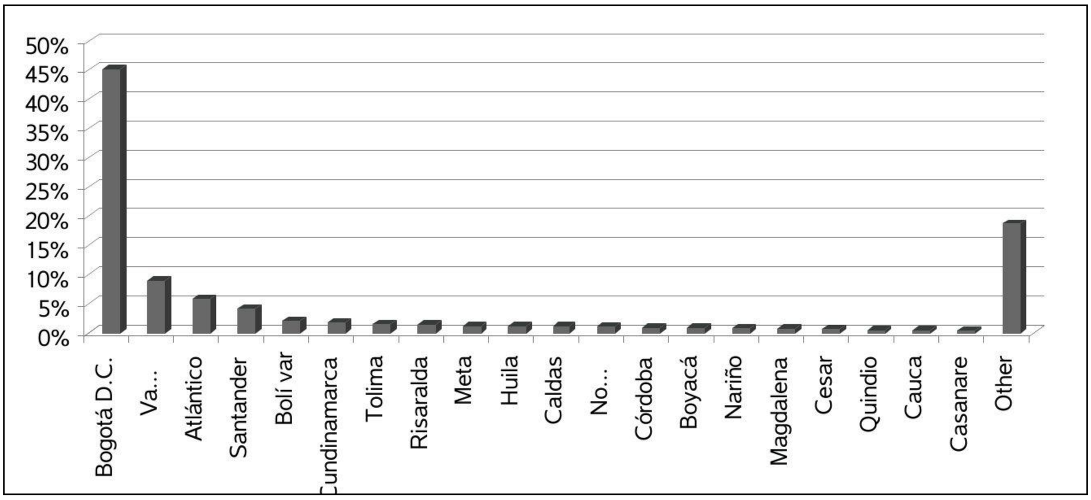

Figure 2. Composition of the gross portfolio of main districts (2013)

Source: our elaboration on data DANE, Superintendencia Financiera de Colombia, the Superintendencia de Economia Solidaria.

About the portfolio of credit for house purchase, the districts where it is most developed are Bogotá with 50.8%, Valle del Cauca with 11.5%, with 7.8% and Atlántico Tolima with 4.09%.

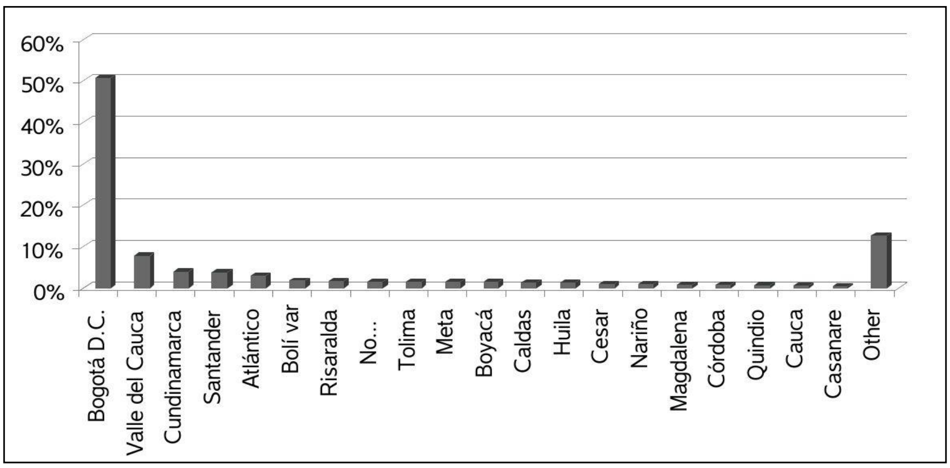

Figure 3. Composition of the portfolio of credit for the purchase of housing the main districts (2013)

Sources: DANE, Superintendencia Financiera de Colombia, the Superintendencia de Economia Solidaria.

The portfolio of consumer credit and leasing, also follows the same trend of the portfolio of credit for house purchase and, therefore, is more developed in the districts of Bogotá with 45%, Valle del Cauca, with 13.7%, with 9.2% Atlántico and Bolívar with 4.09%.

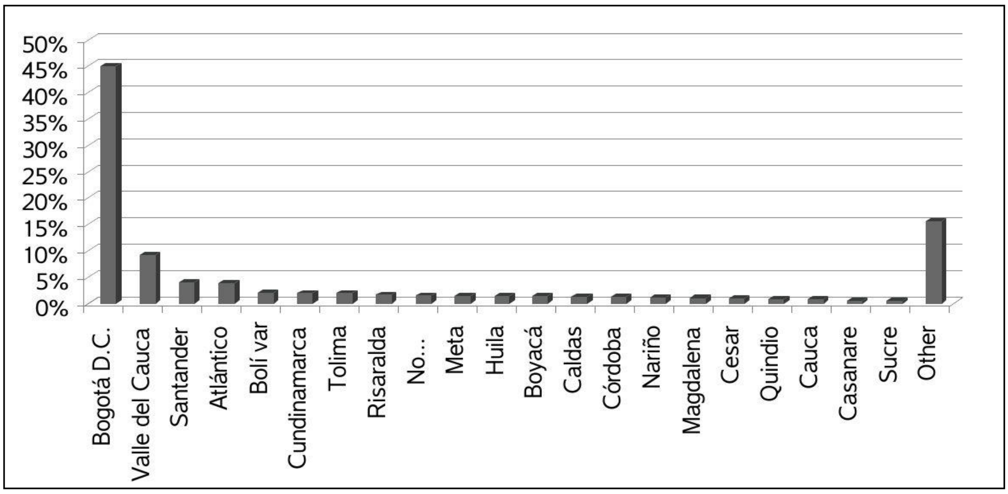

Figure 4. Composition of the portfolio of credit and leasing of consumption of main districts (2013)

Sources: DANE, Superintendencia Financiera de Colombia, the Superintendencia de Economia Solidaria.

Furthermore, concerning the portfolio of the credit and leasing ordinary, it also faithfully follows the distribution of the portfolio of the credit for the purchase of house and the consumer credit and leasing and, consequently, is more developed in the district of Bogota with 46%, Valle del Cauca with 22.43%, Atlántico with 9.2% and Santander with 6.3%.

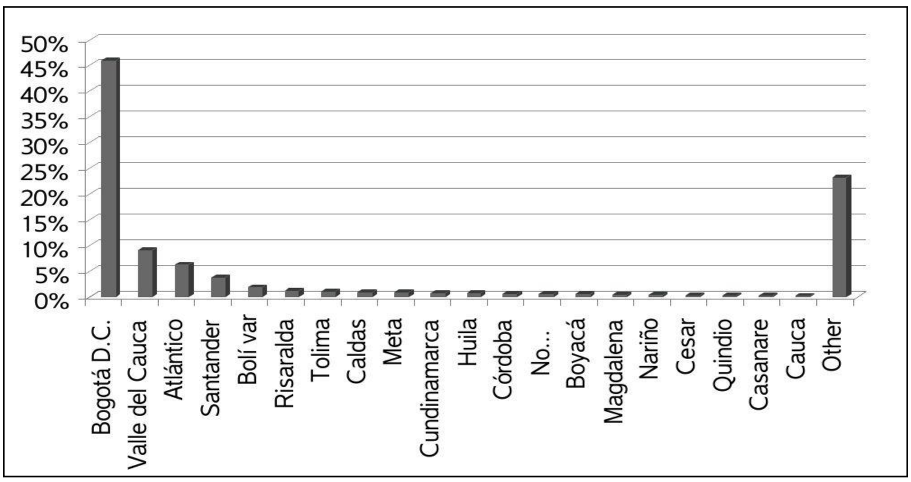

Figure 5. Composition of the portfolio of credit and ordinary leasing main districts (2013)

Sources: DANE, Superintendencia Financiera de Colombia, the Superintendencia de Economia Solidaria.

So the portfolio of microcredithas a more homogenous distribution than other portfolios. The main reason of these differences in the distribution of the portfolio is the fact that microcredit is offered mainly to rural areas of the various districts, while the traditional credit is aimed mostly to urban areas of the country. The second reason, closely related to the first, is that while the traditional lines of credit are aimed at the population and at richest enterprises, microcredit is mostly offered to those persons who have higher difficulty to repay the sums borrowed at higher interest rates.

5. The Analysis of Microcredit Institutions

Following the classification of banks, cooperatives, NGOs and NBFI and ordering them according to an increasing scale of the loan portfolio, the companies analyzed are distinct considering the following variables: the loan portfolio in dollars, number of customers, customer credit in dollars, value of the deposits and the value of the equity, interest rate on microcredit, loss rate of the loan portfolio, the risk portfolio for delays that go from

30 to 90 days, hedge rate.

In addition, for the same companies financial needs was estimated on the basis of residual ratio:

- $Net\ requirement\ of\ the\ loans\ portfolio = Credits - Deposits - Equity$
- *Net requirement ratio = (Loans - Deposits - Equity) / Loans*

Table 8. Entities operating in the field of microfinance (1)

Microfinance Financial Institutions	Loan portfolio (USD	Customers	Loan for customer (USD)	Deposits (USD)	Equity (USD)	Net requirement of the loan portfolio (USD)	Index of net requirement(%)
FiMSA	249,000	1,000	249	0	298,800	-49,800	-20.00%
FASE	332,394	790	421	0	590,169	-257,775	-77.55%
Ecofin	387,799	446	870	0	235,468	152,331	39.28%
OLC	674,292	1,437	469	0	594,753	79,539	11.80%
AVANSAR	721,579	448	1,611	0	847,610	-126,031	-17.47%
AGAPE	965,505	6,789	142	0	1,016,876	-51,371	-5.32%
Producir	999,475	1,206	829	0	941,626	57,849	5.79%
OILA	1,319,101	6,416	206	0	264,796	1,054,305	79.93%
FUNDESCAT	2,491,929	1,587	1,570	0	1,262,533	1,229,396	49.34%
COOTREGUA	2,740,646	1,194	2,295	1,263,911	1,398,451	78,284	2.86%
COOSERFIN	3,292,071	1,212	2,716	0	434,387	2,857,684	86.81%
FUNDESAN	3,372,577	2,990	1,128	0	1,156,917	2,215,660	65.70%
Alcaravan	3,171,161	2,422	1,521	0	4,953,727	-1,782,566	-56.21%
FUNDESMAG	2,319,618	1,406	2,807	0	1,691,595	628,023	27.07%
Coomultagro	5,035,951	1,769	2,847	2,994,340	1,539,462	502,149	9.97%
COMERCIACOOP	5,386,696	7,079	761	3,853,095	1,661,949	-128,348	-2.38%
ActuarQuindio	6,298,594	3,535	1,782	0	1,745,813	4,552,781	72.28%
FMSD	5,986,058	5,211	1,220	0	167,686,926	-161,700,868	-2701.29%
ActuarTolima	6,545,160	9,090	720	0	4,512,111	2,033,049	31.06%
Actuar Caldas	6,853,241	5,365	1,399	0	3,114,619	3,738,622	54.55%
COFINCAFE	18,389,830	16,226	1,154	15,784,553	5,510,745	-2,905,468	-15.80%

Source: Ourelaboration on MixMarket, website of entities, Banco de la Repùblica, SuperintendenciaFinanciera de Colombia, Superintendencia de la Economia Solidaria.

Table 9. Entities operating in the field of microfinance (2)

Microfinance Financial Institutions	Interest rate on Microcredit (COP)	Loss rate of the portfolio	Portfolio risk> 30 days	Portfolio risk> 90 days	Rate hedging of risk
FiMSA	—	—	—	—	—
FASE	—	7.01%	16.47%	7.69%	—
Ecofin	—	8.10%	7.54%	2.59%	115.87%
OLC	—	14.50%	6.37%	4.12%	81.25%
AVANSAR	—	2.97%	14.61%	8.56%	20.15%
AGAPE	—	8.51%	6.68%	4.99%	54.89%
Producir	—	—	16.38%	9.58%	63.48%
OILA	—	7.59%	6.09%	3.30%	87.03%

FUNDESCAT	39.12%	—	1.44%	0.85%	151.39%
COOTREGUA	—	—	—	—	—
COOSERFIN	—	—	—	—	—
FUNDESAN	18.27%	0.08%	3.99%	0.68%	0.87%
Alcaravan	42.70%	2.29%	2.91%	2.32%	42.32%
FUNDESMAG	26.28%	—	3.84%	—	—
Coomultagro	21.60%	1.16%	2.25%	1.42%	87.42%
COMERCIACOOP	25.75%	0.18%	4.32%	3.63%	100.42%
ActuarQuindio	39.60%	1.30%	1.88%	0.97%	100.00%
FMSD	36.00%	-0.29%	14.07%	8.21%	97.95%
ActuarTolima	51.41%	2.26%	5.45%	3.21%	116.83%
Actuar Caldas	31.30%	0.76%	6.87%	3.42%	114.45%
COFINCAFE	—	—	—	—	—

Table 10. Entities operating in the field of microfinance (3)

Microfinance Financial Institutions	Loan portfolio (USD)	Customers	Loan per customer (USD)	Deposits (USD)	Equity (USD)	Net requirement of the loan portfolio (USD)	Index of net requirement (%)
FundaciónAmanecer	21,566,227	11,020	1,957	0	9,510,460	12,055,767	55.90%
OI Colombia	26,196,037	—	—	13,146,286	5,181,702	7,868,049	30.04%
Microempresas de Colombia	28,579,288	19,992	1,430	5,864,174	7,346,722	15,368,392	53.77%
AYF	47,689,413	11,812	4,037	—	—	—	—
Cooperativa Microempresas de Colombia	52,393,133	29,094	1,801	6,786,807	8,774,082	36,832,244	70.30%
Interactuar	54,050,000	32,247	1,818	0	30,570,000	23,480,000	43.44%
CMM Bogotá	58,925,299	72,275	815	0	8,314,281	50,611,018	85.89%
Contactar	61,023,548	72,383	878	0	15,613,263	45,410,285	74.41%
CMM Medellín	68,196,713	66,377	1,027	0	8,644,727	59,551,986	87.32%
Crezcamos	64,675,411	69,378	1,029	0	18,256,425	46,418,986	71.77%
ProCredit - COL	92,937,959	—	—	84,370,297	19,675,832	-11,108,170	-11.95%
FinAmérica	257,979,717	94,805	2,721	254,666,129	41,918,084	-38,604,496	-14.96%
Confiar	262,267,617	48,350	5,424	200,053,457	42,652,916	19,561,244	7.46%
FundaciónDelamujer	307,324,746	352,529	777	0	116,939,258	190,385,488	61.95%
Banco WWB	386,017,640	206,405	1,870	104,485,939	216,955,854	64,575,847	16.73%
Comultrasan	402,653,414	93,689	4,298	273,187,032	136,906,228	-7,439,846	-1.85%
FundaciónMundoMujer	483,712,815	531,240	869	0	312,942,849	170,769,966	35.30%
Bancamía	495,054,792	365,389	1,355	182,795,911	150,567,908	161,690,973	32.66%
Banco Caja Social	539,026,922	675,370	798	4,333,207,631	671,984,482	-4,466,165,191	-828.56%
Fomentamos	702,952,613	—	—	0	27,840,824	675,111,789	96.04%
B. Colombia Microfin.	9,301,778,541	—	—	—	—	—	—

Source: Our elaboration on MixMarket, websites of entities, Banco de la Repùblica, SuperintendenciaFinanciera de Colombia, Superintendencia de la Economia Solidaria.

Table 11. Entities operating in the field of microfinance (4)

Microfinance Financial Institutions	Interest rate on Microcredit (COP)	Loss rate of the portfolio	Portfolio risk> 30 days	Portfolio risk> 90 days	Rate hedging of risk
FundaciónAmanecer	—	3.52%	3.92%	1.95%	150.96%
OI Colombia	52.21%	—	—	—	—
Microempresas de Colombia	31.20%	—	4.05%	—	—
AYF	—	—	—	—	—
Cooperativa Microempresas de Colombia	36.07%	2.85%	2.06%	1.39%	88.11%
Interactuar	31.24%	0.00%	8.55%	6.53%	84.07%
CMM Bogotá	—	0.40%	1.98%	1.40%	124.60%
Contactar	35.75%	0.69%	1.80%	1.41%	132.32%
CMM Medellín	—	0.81%	1.78%	1.57%	124.17%
Crezcamos	40.33%	1.79%	3.01%	1.56%	118.23%
ProCredit - COL	39.02%	—	—	—	—
FinAmérica	47.00%	4.18%	10.67%	8.22%	75.52%
Confiar	32.75%	0.74%	3.83%	2.28%	131.02%
FundaciónDelamujer	37.30%	2.93%	4.40%	2.72%	104.00%
Banco WWB	45.90%	2.54%	7.70%	6.59%	100.99%
Comultrasan	—	1.08%	3.44%	2.24%	221.98%
FundaciónMundoMujer	—	1.78%	2.45%	1.58%	104.00%
Bancamía	37.55%	5.39%	6.28%	4.32%	82.12%
Banco Caja Social	34.83%	10.26%	6.10%	3.91%	82.56%
Fomentamos	40.50%	1.82%	0.52%	0.27%	427.23%
BancolombiaMicrofinanzas	38.60%	—	—	—	—

The most important thing is that on average the interest rates on microcredit are 2.5 times bigger than the interest rates on ordinary loans. In fact on average the interest rate on loans of micro credit is 29.87%, compared with an average interest rate on ordinary credit equal to 11.96%.

6. Conclusion

In conclusion, according to the analyzed variables, it can be said that the framework of Microcredit represent a founding opportunity for micro-enterprises in Colombia and an investment opportunity for investors who collect funds on the international market, and use them in Microcredit sector. The high interest rates on microcredit in Colombia guarantee adequate profit margins even when such investors borrow money at higher rates than rates that are usually present in international market. In fact we have to highlight that the Microcredit is a high risk investment which presupposes expected return more considerable.

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