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Egypt's Ranking on the Knowledge Economy Index: Barriers to Transformation in Revolutionary Times

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Abstract: This article seeks to bridge the gap in literature between Knowledge Management as a prerequisite to innovation and transformation of developing countries such as Egypt. Several articles and research studies have been conducted on this relationship, yet none has been extended to North Africa. Egypt is currently walking a thin line between revolutionary change that can aid the country in regaining its former glory and long-lasting chaos. **Design/Methodology/Approach:** The authors have conducted interviews with 50 junior and senior level managers in the ICT and FMCG sector in Egypt according to a structured questionnaire that seeks to identify Egypt's position on Knowledge Management and innovation. The results of the individual companies provide us with an aggregate picture of the economy, enabling us to assemble the first SWOT analysis for Egypt's current position. **Findings:** The Egyptian economy possesses high potential given the existence of the enabling tools that allow Knowledge Transfer. Yet, the enduring weaknesses of a deeply rooted culture that defies Knowledge Transfer, corruption and an outdated educational system pose a threat to the economy's ability to innovate and advance. These findings justify the World Bank's ranking of Egypt on both the Knowledge Index (KI) and Knowledge Economy Index (KEI) for 2009. **Originality/value:** The value of this research resides in compiling a SWOT analysis that would be of value for practitioners and policy makers in Egypt and allow them to fathom the justification behind the World Bank's ranking of Egypt. This information should formulate a solid base for Egypt's transformation path.

Key words: knowledge management; innovation; Egypt; knowledge index (KI); knowledge economy index (KEI)

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1. Introduction

The management of knowledge is frequently identified as an important antecedent of innovation (Darroch and McNaughton, 2002). The Knowledge Assessment Methodology (KAM) is an internet-based benchmarking tool developed by the Knowledge for Development Program of the World Bank. The tool provides a basic assessment for the knowledge economy readiness for 128 countries in 9 regional groupings (Chen and Dahlman, 2005). The World Bank has identified four pillars to gauge whether or not a country is conducive for the development of a knowledge economy; namely economic incentive and institutional regime, education, innovation and ICT. This signifies a correlation between both Knowledge Management and innovation that is worthy of research.

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Accordingly, this article aims to discuss the marketplace trends in Knowledge Management and innovation in Egypt through constructing a SWOT analysis for the Egyptian economy. This aims to demonstrate that Knowledge Management and innovation are inter-related, and that the management of knowledge and human capital should be an essential element of running any type of business (Gloet and Terziovski, 2004).

2. The Literature Review

2.1 Definition of Knowledge Management

Knowledge is a broad and abstract notion that has defined epistemological debate in western philosophy since the classical Greek era. In the past few years, however, there has been a growing interest in treating knowledge as a significant organizational resource (Alavi and Leidner, 2001). Accordingly, researchers and practitioners have realized the importance of the concept and transformed it into the efficient and effective management and classification of knowledge, which if properly administered might bring about fruitful returns. Literature is satiated with definitions of the term including that of Frappaolo (2006), Hansen et al. (1999), Malhorta (1998), O'Dell and Grayson (1998) and Groff and Jones (2003), to name but a few.

In 1998 Malhorta proposed a definition, which he suggested found a general consensus amongst scholars and practitioners across the world. He states that "Knowledge Management refers to the critical issues of organizational adaptation, survival and competence against discontinuous environmental change. Essentially, it embodies organizational processes that seek synergistic combination of data and information processing capacity of information technologies and the creative and innovative capacity of human beings". Although some definitions are a mere recitation of the stages or processes of Knowledge Management and may seem outdated, others take into account the dynamic nature of knowledge and, through their definitions, have been able to demonstrate the impact of this concept on key outcomes such as organizational performance, innovation, organizational adaptation and responsiveness (Nafie and Jones, 2011, forthcoming).

Simply stated, Knowledge Management includes making knowledge available in organizations whereby employees that need information have immediate access to it. Making this knowledge available poses a challenge since there are two types of knowledge tacit and explicit and there are several knowledge enablers that have been identified by researchers that need to be present for knowledge to be transferred within the organization.

Unfortunately, until now implementing Knowledge Management (KM) has been like nailing jelly to the wall (Tiwana, 2000), as such Cortada and Woods (1999) proposed eight major categories of knowledge-focused activities that could be managed within an organization to provide the broad and complex concept with clear and identifiable dimensions that one could specifically refer to when discussing/measuring Knowledge Management.

- Generating new knowledge
- Accessing valuable knowledge from outside sources
- Using accessible knowledge in decision making
- Embedding knowledge in processes, products and/or services
- Representing knowledge in documents, databases and software
- Facilitating knowledge growth through culture and incentives
- Transferring existing knowledge into other parts of the organization
- Measuring the value of knowledge assets and/or impact of Knowledge Management

2.2 Types of Knowledge

“There seems to be a clear accord in much of the Knowledge Management literature that there are two main types of knowledge—tacit and explicit.” Authors such as Groff and Jones (2003), O’Dell and Grayson (1998), Ikujiro Nonaka (1991), Frappaolo (2006), and Tiwana (2000) among others have proposed similar definitions. Nonaka (1991) simply states that *explicit knowledge* is “formal and systematic and for this reason can be easily communicated and shared” while *tacit knowledge* is “highly personal and hard to formalize and, therefore, difficult to communicate to others”. Frappaolo adds to this by explaining that *explicit* knowledge is articulated in formal language while *tacit* knowledge is embedded in individual experience and involving such intangible factors as personal belief, perspective, instinct and value (2006, p. 10; 2009).

2.3 Knowledge Management Enablers and Barriers

To ensure effective implementation of Knowledge Management, several authors have identified various factors that need to be present if the endeavor is to succeed. Heeseok and Byounggu (2003) proposed a model of seven enablers including: collaboration, trust, learning, centralization, formalization, T-shaped skills, and information technology support, while O’Dell and Grayson (1998) proposed only culture, technology, infrastructure and measure. Apparently, there seems to be a consensus among researchers that technological support and culture are essential to building a successful Knowledge Management base. This includes basic IT hardware and software as well as appropriate IT solutions that will facilitate the process of knowledge dissemination.

Research results in Egypt have shown that the IT tools are available in all companies. Organizations invest heavily in upgrading their technology with internet access available to all employees and knowledge repositories created to promote sharing. Borghoff and Pareschi (1998) call this repository a corporate memory and state that a corporate memory is an explicit, disembodied, persistent representation of knowledge and information in an organization. Yet, interviews show that although repositories are available, access is granted via a username and password on a need to know basis. Knowledge remains highly guarded and closely held to top management. It remains a symbol of status and wisdom. Moreover, local companies and government institutions inaugurate sophisticated systems in place through tenders, but do not walk the extra mile by training employees to use the system and give them sufficient time for the transformation phase. As such, IT systems are not used to their full potential with frequent setbacks occurring. Helpless employees are asked to contact the solutions provider and work the problem over the phone, which rarely proves effective. Finally, employees lose hope in the new system and either revert back to their old ways or try to endure the problems of a perfectly functional system that was not designed for them!

Culture, the second Knowledge Management enabler, can present itself in two ways; on the outer circle is the national culture defined as “...patterned ways of thinking, feeling and reacting, acquired and transmitted mainly by symbols, constituting the distinctive achievements of human groups, including their embodiments on artifacts; the essential core of culture consists of traditional ideas and especially their attached values” (Hofstede, 2001). While in the inner circle, organizational culture is defined by Trompenaars and Hampden-Turner (1998) as the way in which a group of people solves problems and reconciles dilemmas (1998). Organizations with a culture based on trust and mutual cooperation represent a formula for success and a fertile ground for innovation since employees build on each others’ experiences and don’t squander time reinventing the wheel. Accordingly, researches have shown the importance of culture to knowledge sharing and transfer (Hill et al., 1998; Jones, 2007), where both authors give examples of instilling new technologies and training employees in the Arab world; nevertheless, they confront the barrier of both the corporate and national cultures.

Interview results in both local and multinational companies in Egypt show that the situation is no different

with a majority stating that national culture is not conducive to Knowledge Transfer given deeply rooted cultural heritage that dates to the Pharaohs, which does not promote the sharing of knowledge with subordinates further down the hierarchy. The authors found exceptions in two multinational ICT companies, whereby the existence of a strong corporate culture outweighed the effect of the national culture, compelling employees to follow the companies' way of doing things. The ICT sector is characterized by innovation and rapid change, justifying why the results are different from the FMCG sector, where corporate cultures were weak and strategies dictated by headquarters. From the above we can deduce that culture can act as both an enabler and an impediment to success. It seems that change is sluggishly taking place, following the Spring Revolution where results have shown a sharp shift in the national culture, but have not yet permeated the intricate workings of the economy (Nafie, 2011).

Interpersonal trust has been stated as an imperative pillar in allowing effective and amplified exchange of knowledge between employees and silos of an organization (Levin et al., 2002). According to Nahapiet & Ghoshal (1998) trust lubricates cooperation, and cooperation itself breeds trust. This shows a mutual synergistic relationship between both factors that has been aforganized by many researchers to have a colossal bearing on Knowledge Management activities within organizations (Park, 2006; Levin et al., 2002). Although important, research results shows that this enabler is in fact an impediment to Knowledge Management activities in Egypt. Interview results showed that more than 90% of interviewees explicitly stated that most people cannot be trusted. This has several drawbacks: the obvious is a lack of cooperation between employees and silos of an organization, hindering efforts to collaborate and innovate to bring new products to the market. This might be an important reason for Egypt's loss of its global competitive position and inability to compete internationally.

2.4 Knowledge Assessment Methodology

In order to facilitate countries trying to make the transition to the knowledge economy, the *Knowledge Assessment Methodology* (KAM) was developed by the World Bank Institute. The user-friendly, interactive, internet-based tool was designed to provide a basic assessment of countries' readiness for the knowledge economy, and identifies sectors or specific areas where policymakers may need to focus more attention or future investments (Chen and Dahlamn, 2005). The authors have utilized the results of this interesting assessment as an input into the SWOT analysis, which will illustrate Egypt's situation to date. KAM has been developed for 128 countries within 9 regions with results ranked on an ordinal scale from 0 (weakest) to 10 (strongest). The four pillars that constitute the basis of this methodology are important determinants of long-term economic growth (Ibid, 2005).

Prior research results have shown the importance of education on per capita GDP (Barro, 1991) and economic growth (Cohen and Soto, 2001). Educated individuals have increased capacity to learn and contribute to an economy's skilled labor force. This labor force is the basis for economic development and productivity within a nation and it is their contribution to R&D and innovation that is of value. An effective innovation system is one that provides an environment that nurtures research and development (R&D), which results in new goods, new processes and new knowledge, and hence is a major source of technical progress (Chen and Dahlman, 2005). Adams conducted a research that shows a significant correlation between the number of scientific papers contributed and growth in productivity in manufacturing industries based in the United States in the 1953–1980 period.

An adequate information infrastructure, commonly referred to as ICT, includes a country's usage of technology. This includes telephone lines, computer availability and usage as well as internet usage within a country. Technology has transformed economies around the world leading some of them to leapfrog (such as the South East Asian countries). A study by Oliner and Sichel (2000) shows how the usage of ICT has led to increased economic growth during the past decade. Finally, the previous three pillars cannot function effectively

without an economic incentive an institutional regime where well-grounded and transparent macroeconomic, competition and regulatory policies exist (Chen and Dahlman, 2005).

Table 1 Egypt's Rating on the Knowledge Economy Pillars-2000

Index	Egypt, Arab Rep.
Knowledge Economy Index (Average of 3,4,5,6)	4.31
Knowledge Index (Average of 4,5,6)	4.50
Economic Incentive and Institutional Regime	3.73
Education	4.70
Innovation	5.03
ICT	3.78

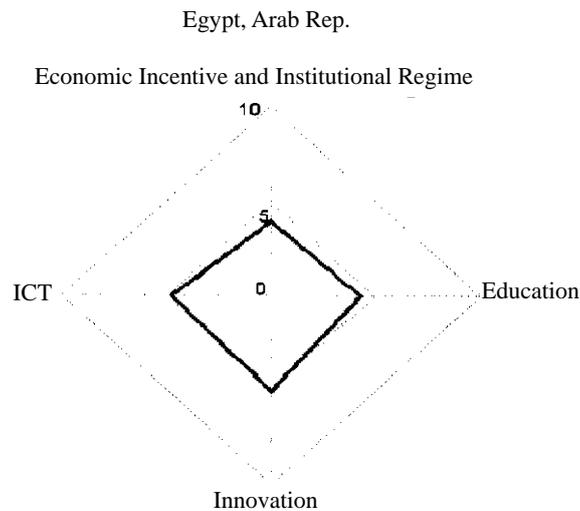


Figure 1 Knowledge Economy Pillars for Year 2000 in Graphical Form
http://info.worldbank.org/etools/kam2/scorecard_bs_separate.asp?chart=1

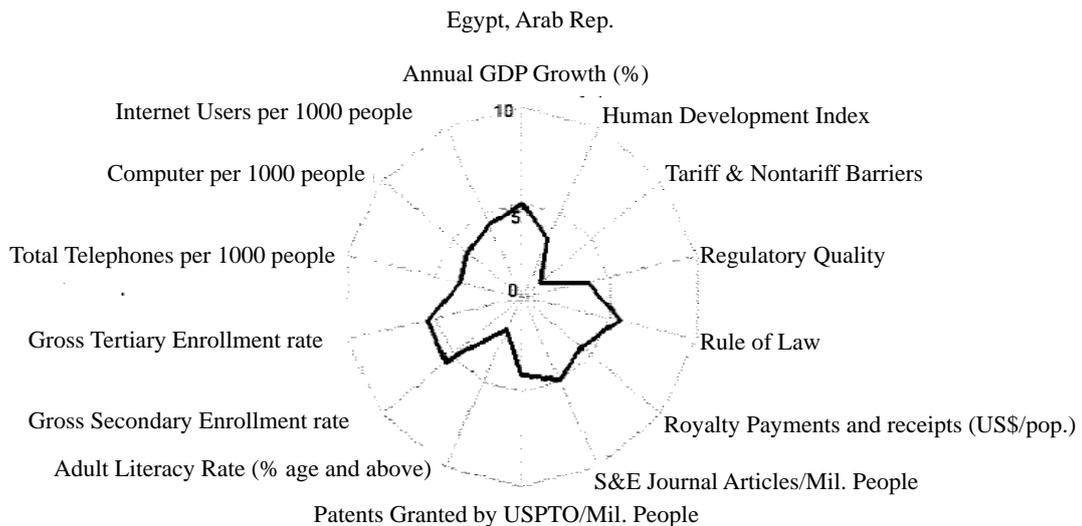


Figure 2 Egypt's Ranking on Variables Representing the Different Pillars
http://info.worldbank.org/etools/kam2/scorecard_bs_separate.asp?chart=1

3. Findings

Empirical evidence supports the view that organizations with a Knowledge Management capability will use resources more efficiently and so will be more innovative and perform better (Darroch, 2005). Interviews with 50 junior and senior level managers at local and multinational companies in the ICT and FMCG sector since the Spring Revolution has determined the following marketplace development and trends that are worthy of discussion:

- Almost all of the companies visited are directed by functions and not business units, which implies that centralization in decision making persists. This has serious implications on Knowledge Management efforts within corporations since knowledge dissemination and sharing within such organizations tends to be sluggish and complex.
- All interviewees have indicated that a relationship outside the office exists with colleagues. This informal, one-on-one rapport acts as a lubricant in all companies. Most interviewees indicated that without it, they would not exchange knowledge or trust peers easily.
- Organizations in Egypt do not highly rate Knowledge Management efforts within their priorities. As such, no formal endeavors are taken by company management to raise awareness on the importance of the subject and its implications on future competitiveness.
- Organizations do not free up employees' time for socialization or dedicate specific time for formal coffee breaks where employees can engage in work-related discussions.
- All organizations have state-of-the-art software ICT software and hardware including knowledge repositories where all the company's information is stored for future retrieval and reference. Nevertheless, access is granted on an individual basis depending on their "need to know" and its degree of confidentiality. Usernames and passwords which expire once used, have been created to guard the repository with only general knowledge such as seminars and manuals available to all.
- Following the above points, all organizations possess intranet systems, but no active efforts are taken to encourage employees to access the system and discover material that might be of use for innovation such as novel ideas and processes.
- Employee handover efforts as part of Knowledge Transfer and Knowledge Management at large are a mere formality in most organizations. Interviewees stated that employees are usually in a hurry to leave and hence time is of the essence. New employees are left to navigate the system and search for the required knowledge at their own pace. This causes more harm than good, since productivity slumps for a period and other dependant personnel/departments are obliged to wait until the employee is properly aligned to the new system and ready to function.
- Companies usually do not assign a mentor/coach to new employees since the workload is high and demanding. Accordingly, new employees only receive a formal orientation, leaving them to discover the intricacies of their new job.
- Employees are not encouraged to innovate or think out of the box. Only a few multinational companies from those interviewed stated that this is the norm at the workplace. The reasons attributed by interviewed managers include a desire to maintain the status quo, and a solemn adherence to the motto "knowledge is power". Ideas and innovations have to pass through management, who either are apathetic to employee efforts or discredit employees in favor of themselves. Over time, this has created a de-moralizing atmosphere which has not only nipped innovation attempts in the bud, but also diminished Knowledge Management significantly across organizations.

The above key findings show that Egypt's rating on the KAM is well-grounded. ICT scores 3.78, which may

be related to lack of employee training on technology and thus their inability to use it effectively as well as the inexistent management support to utilize the organization's intranet. As for economic incentive and institutional regime, a rating of 3.73 is justified by Egypt's recent unstable economic and political situation in addition to its historical corrupt regime that has been overthrown leaving the nation with poor economic indicators of inflation and unemployment. Regulatory quality and rule of law are minimal given the regime's desire for personal gains instead of the nation's welfare. The interconnected pillars of education and innovation scoring 4.70 and 5.03 respectively are attributed to low adult literacy rates as seen in Figure 2 above. A nation with high illiteracy is challenging to advance. Nevertheless, innovation is mediocre given the large amount of scientists engaging in R&D as evidenced by the decent amount of journal articles published per million (in Figure 2 above).

Carneiro (2000) examines the relationships between organizations' competitiveness, innovation advancements, and Knowledge Management and presents a set of considerations regarding how these relationships affect strategic management and the formulation of competitive strategies. In Egypt, the relationship between these factors is imperative especially in light of the current situation where expectations are high and hopes of ameliorating the political and economic situation are eminent. Knowledge needs to be managed, with the assistance and continuous support of higher management. A commitment to sharing information with the aim of creating a change is the goal of the coming era. Not only will this encourage innovation, but also create an atmosphere of trust and collaboration, which is a requirement for both innovation and Knowledge Management. A nation with the said determinants will be able to increase its productivity and hence global competitiveness. Egypt, formerly the largest exporter of cotton during the 1950s is currently a net importer.

4. Discussion

Egypt ranks 89 out of 128 countries in the results of the Knowledge Economy Index (KEI) published by the World Bank in 2009 rating the country at 4.31/10. The KEI takes into account whether the environment is conducive for knowledge to be used effectively for economic development based on the four pillars. This depicts a below-average rating especially when compared with neighboring Middle Eastern countries such as Qatar and the UAE scoring 6.06 and 5.96 respectively and ranking 49 and 50 respectively. Changing economic policies and a corrupt political regime have left Egypt burdened by debt, a problem which has been exacerbated following the Spring Revolution with the flight of investor capital from the country and the halt of production in almost all economic sectors, demanding their long-forgotten rights of workplace equality, raises and yearly bonuses. This might explain Egypt's score of 3.73 on the economic incentive pillar as opposed to 6.63 and 7.71 by Qatar and the UAE respectively as an example of economies that strive to furnish investors with an environment conducive to production by instating abiding rules of law.

As stated above, education and innovation are closely related with Egypt scoring 4.70 and 5.03 respectively. This is quite shocking for a nation with a strong cultural heritage such as Egypt especially with Egypt having a significant number of scientists working in R&D (Zeng, 2006). Although Nobel Laureates Dr. Ahmed Zuwail, novelist Naguib Mahfouz, renowned cardiologist Magdy Yacoub and Dr. Mohamed El Baradei, previous Director General of the International Atomic Energy Agency, are all Egyptians, the problem still persists. Almost all TV programs following the Spring Revolution have been calling for an overhaul of the educational system, which was once able to produce such scientists, but has now become outdated and graduates are not employable. Nour (2005) tries to explain the lack of innovation in Egypt through looking at a failure to build human capital. She states that

public expenditure on education was highest in the case of the 26.1% spent by Morocco. On the contrary, Egypt's % is in single digits, despite recording the appointment of 493 senior scientists during 1996–2000, the highest in the Arab world (Nafie and Jones, 2011, forthcoming).

Although ICT tools are available in Egypt, they have not been properly put to use as a result of a lack of training on the new systems as well as a work force that is resistant to change. The educational system has produced a laborious workforce that is incapable of thinking out of the box and embracing new technologies. As a result Egypt has scored 3.78 on this pillar compared to 7.06 and 7.91 by Qatar and UAE respectively. Although these countries are heavily dependent on expatriate labor, it is this qualified, well-educated and flexible labor force that is equipped to adapt to new and changing ICT systems in order to produce high quality output in response to lucrative incentive systems set by organizations.

From the above information, the authors have compiled the following SWOT analysis to demonstrate the nation's strengths and weaknesses providing policy makers and investors with a viewpoint at the situation.

Strengths:

- Egypt has a prime geographical and logistical location on both the Red and Mediterranean Sea, in addition to the presence of the Suez Canal.
- Substantial water supply from the Nile River allowing for the irrigation of the country's fertile land.
- Large population size approaching 83 million. Egypt ranks 27th in domestic and foreign market size, rating it as a lucrative market for Foreign Direct Investment (FDI).
- Hub for investment in the Middle East that has attracted more than 880 multinational companies in 37 different sectors (Foreign Companies Yearbook, 2008).
- Sizeable skilled and semi-skilled labor force.
- Strong political power in the Middle East and North Africa with influential decision making capabilities within the region.
- Egypt has recorded the appointment of 493 senior scientists within the last decade (Nour, 2005).
- Egypt has the largest army within the Arab world allowing for protection of its boundaries and providing it with the required stability.
- One of the world's largest markets for tourism.

Weaknesses:

- Egypt is currently in a state of upheaval given the Spring Revolution.
- Egypt's public expenditure on education is only 12% (UNICEF statistics).
- An outdated and underdeveloped educational system that produces a labor force that is possibly unemployable.
- Changing economic policies.
- High levels of poverty: 13.7 million Egyptians were recorded to live below the poverty line in 1996 (Hassanin, 1999).
- High unemployment rates reaching 11.3% in 1996 (Hassanin, 1999).
- Egypt lacks innovation capabilities attributed to the educational sector and high illiteracy rates reaching 66% in 2005–2008 (UNICEF statistics).
- Egypt ranks 81 out of 139 participating countries on global competitiveness and 109 and 74 on innovation and company spending in R&D respectively according to the results of the World Economic Forum – Global Competitiveness Report.

- According to the Knowledge Assessment Methodology, regulatory quality in Egypt is weak, which might imply a lack of trust for foreign investors.

- Strong national culture characteristics which act as an obstacle to Knowledge Transfer in both local and multinational companies (Nafie and Jones, 2011, forthcoming).

Opportunities:

- The abundance of undeveloped and urban land presents an opportunity for the development of large-scale urbanization projects.

- The large population poses a diverse market for a multitude of investors providing different products at varying prices to cater for the demand of a diverse base where the distribution of income is different.

- Unemployment represents opportunities for companies to recruit labor at low cost.

- International organizations such as UNICEF have the chance to intervene to bestow grants and establish projects to alleviate poverty and raise literacy levels. Not only will this will raise the economic standard of living, but also create a ripple of organizations that are willing to aid the organizations, thus driving the economy forward.

- The Spring Revolution has overthrown the corrupt regime. A new political system which aims to alleviate corruption and promote equity is in the pipeline. This will act as an incentive for foreign investors that wish to penetrate the Egyptian market.

- Egypt's senior scientists, including Nobel Laureate Dr. Ahmed Zuwail, are promoting various efforts to overhaul the educational sector.

Threats:

- Reform might take time rendering the economy in a state of chaos for some time.

- Egypt is highly indebted and thus funds for development of the economy in the short-term are unavailable. This has forced the economy to turn to the International Monetary Fund (IMF) for loans, which might overburden the economy if reform does not take place fast.

- The internal security situation in Egypt is volatile given several demonstrations, which might jeopardize tourism efforts that provide a base for Egypt's GDP.

5. Conclusion

The relationship between Knowledge Management and innovation is an important one. Not only does it impact productivity and competitiveness, but also a country's ability to leapfrog and advance into a different dimension. Egypt has been reborn following the Spring Revolution and stands a high chance of success if the current problems are addressed. According to the interviews, problems persist with management support and ICT implementation within organizations. Suppressed innovation efforts and inability to cause change are a hindrance to competitiveness. The lack of trust felt by most interviewees results in diminished cooperation between employees, again impacting innovation. An underlying problem to all challenges is the outdated educational system, which needs immediate attention in order to produce a qualified and employable labor force. Such a transformed labor force will revolutionize industries, increase productivity and produce novel products, services and processes to cater for a growing and diverse market. The situation within Egyptian organizations needs to be transformed to keep up with the pace of globalization. Additional chances may not come by again!

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Typology of Sensemaking and Leader's Success in the United States and France: A Cross-cultural Study

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Abstract: This cross-cultural review discusses the process of sensemaking as applied to the current economic environment comparing the United States and France along the dimensions Hofstede proposed on national culture. We develop a typology of sensemaking and successful leadership posing that if applied, has the potential to contribute to economic recovery. Sensemaking predictor variables, including event, time, resources, tools and national culture are hypothesized to influence the dependent variable, decision making, leading to the desired outcome. Given the prevailing world economic condition, the question posed in this study is whether organizational leaders could benefit by engaging in sensemaking.

Key words: sensemaking; leadership; economic recovery; France; United States

JEL Code: M16

1. Introduction

Many citizens across the U.S. and abroad seem puzzled amid today's economic malaise. For some it is a conscious thought process, whereas others are seldom mindful of this state of affairs. Think of the way many of us feel when driving to work. Anywhere in the US, gasoline prices are increasing three, sometimes four times during the course of the same day. We are just as amazed at the spike in the price of simple staples such as orange juice and milk. In addition, reports of an increasing number of educated and highly qualified individuals unable to find employment in the U.S. are causing some to speak of a jobless recovery. In France, one can hardly fathom how the price of a baguette has increased threefold in the same time it took the French to abandon the French Franc to reluctantly embrace the Euro. Even though it is agreed that European economies tend to be in a constant state of depression, the last years have not been easy for many in Europe, with the exception of those living in Germany.

2. Research Question

There is such a time as time for reflection (Obama, 2006). The difficulties facing our economies force all to question deep seated ways of operating, even as actors from different sides of the debate engage more in the blame game than in fact-finding exercises of the kind that will advance the debate (Obama, 2006). During such a

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time engaging in sensemaking is a means to understand what needs to be done to change the current tide (Ancona, 2010). The reflection in which one engages forces those involved to partake in thorough investigation and soul-searching forcing one to admit what is or used to be is no longer working (Ancona, 2010; Weick, 2011). The more one peers into what used to be and what is, the more the need to rethink (Ancona, 2010), remake (Berente, Hansen, Pike, & Bateman, 2011), reconstruct (Moss, 2001), and reinvent reality (Nonaka, 2007), becomes clear (Weick, 1995).

This is the process of sensemaking, in which people engage in order to unravel the meaning of events and happenings (Weick, 2011; 1995). It emerges in times of crisis, uncertainty (Moss, 2001; Nonaka and Takeuchi, 2011; 2007), ambiguity, and chaos (Fiss & Hirsh, 2005; Rutledge, 2009; Vuori & Virtaharju, 2012). Uncertainty, perplexity, and complexity drive the process of sensemaking (Nonaka, 2007; Rutledge, 2009; Vuori & Virtaharju, 2012). Thus, sensemaking appears as the search for new knowledge (Nonaka, 2007) resulting in the creation of new ways of operating or innovations (Nonaka, 2007) targeted towards new but real problems.

In the context of the recent economic environment, the world is facing unprecedented and continued malaise. Case in point is the compelling example of an ever increasing number of educated individuals on public assistance, contradicting the prevailing assumption that individuals on welfare tend to be minority and illiterate. In the United States, the number of individuals with master's or doctoral degrees on public assistance grew from 20 million in 2007 to 22 million in 2010 (Patton, 2012). In France, economic indicators do not presage better news and the contraction of trade is but one of such indicators (Bricongne, Fontagné, Gaulier, Taglioni, & Vicard, 2012). Elsewhere in the world, the global nature of the world economy forces individuals everywhere to take heed to what is occurring in one nation, as it often portends what is going to happen next, regardless of where one happens to be (Daniels, Radebaugh, & Sullivan, 2013; Fiss & Hirsch, 2005; Kwantes & Boglarsky, 2007). Given the prevailing world economic condition, the question posed in this study is whether organizational leaders could benefit by engaging in sensemaking? In other words, this discussion focuses on the impact of sensemaking on innovative organizational leadership amid the uncertainty caused by a stumbling world economic climate (Berente et al., 2011; Fiss & Hirsh, 2005; Marmemout, 2010; Weick, 1995). Sensemaking is not a novel concept; it is one often studied in the context of organizations in an attempt to make sense of events to improve organizational performance (Ancona, 2010; Berente et al., 2011; Lundberg, 2000; Weick, 1995). While Pye (2005) goes so far as to reframe leadership as an example of sensemaking noting it is "more inclusive and draws in other crucial elements of everyday life in organizations which are overlooked by much of the leadership literature" (p. 37), for the most part, scholarship builds on sensemaking as a paradigm that reflects a myriad of indicators that drive some aspect of organizational effectiveness.

3. Purpose

The purpose of this review is to develop a typology of sensemaking and successful leadership that if applied would move us one step closer toward the recovery of a world economy that seems to be heading in a direction no one could have fathomed (Patton, 2012). We argue that the path to innovation and excellence in society rests on managers, leaders, and others in positions of responsibility (Moss, 2001; Nonaka & Takeuchi, 2011). From government organizations to corporate enterprises, in the U.S., France and across the globe, leaders engaging in sensemaking initiate change resulting in innovation and excellence (Ancona, 2010; Garcia-Mira, Rea, Uzzell, San Juan, & Pol, 2006). By engaging in the kind of reflection (Vuori & Virtaharju, 2012) that goes beyond integrating

the existence of ambiguities (Dedieu, 2010; Moss, 2001; Rutlege, 2009) the leader should be able to conceive new concepts leading to the building of a new reality (Berente et al., 2011; Obama, 2006), and the creation of effective change (Ancona, 2010; Nonaka, 2007; Weick, 2011; Drazin, Glynn & Kazanjian, 1999).

4. Rationale

Uncertain times and an environment in which change makes obsolete many tested solutions (Nonaka, 2007) compel today's leader to become innovative in order to lead effectively in a global economy (Kwantes & Boglarsky, 2007). Thus, sensemaking develops in response to the prevailing economic reality (Lundberg, 2000; Marmenout, 2010; Rutlege, 2009). Besides a fragile U.S. recovery, similar accounts of economic instability in Europe and Asia, beg a discussion of a nature that leaves no one indifferent to or immune from the issues and implications discussed.

As mentioned, sensemaking is a powerful notion that has been used to study various organizational phenomena (Berente et al., 2010; Weick, 2011). In this discussion, we used the concept of sensemaking to provide insight into leadership during challenging economic times. We will proceed in the following fashion. First, we will discuss the reason we are comparing the US and France, two countries whose national cultures share few similarities (Hofstede, 2001), even as the two countries have always maintained a love-hate relationship (Essounga, 2009). Second, we will offer a typology of sensemaking and leader's success, leading to economic recovery. The implications, future orientations and limitations of the present review will conclude this discussion.

5. Why Study the U.S. and France

France is part of Europe, a force to reckon with in today's global world. Europe is currently the most influential economic zone in the global economy. In 2009, the European Union (EU) had a GDP of over \$15 billion, and a population of 582 million individuals. This zone also shelters individuals with a purchasing power of \$16,011 per capita, only second to those individuals in the NAFTA coalition who boast a per capita GDP of \$38,085 due to the U.S. belonging to the NAFTA bloc (Daniels et al., 2013). Historic reasons make France a prominent political and cultural member of the EU (Lacouture, 1998; Nadeau & Barlow, 2003). As many familiar with the history of Europe will contend even today, there is no Europe without France and Germany (Nadeau & Barlow, 2003). Mitterand became president of France in 1981 and went on to govern France for 14 years, respected by all, and loved by some (Lacouture, 1998). However, history notes that building Europe was Mitterand's way of ensuring World War II, the war Europe never forgot would never happen again (Lacouture, 1998; Nadeau & Barlow, 2003). Thus, today, beyond the economic overtones of the EU, Europe remains a union with political motives at its core (Daniels et al., 2013). France today represents an impressive prospective market, and the U.S. can only stand to gain from its familiarity with France.

Given that the language barrier makes studies discussing this country sparse (Morgan-Thomas & Essounga-Njan, 2010), this review contributes to filling that gap. Hofstede's classification of countries along national culture dimensions (Hofstede & Hofstede, 2005) showed the U.S. and France are different on these elements. France was found to be higher in power distance than the U.S., higher in collectivism than the U.S., higher in uncertainty avoidance than the U.S., and lower in masculinity than the U.S. (Hofstede, 2001). These differences in national culture were found to influence the manner in which individuals engaged in the process of sensemaking (Fiss & Hirsch, 2005; Kwantes & Borglarsky, 2007). In addressing situations leaving no other choice

but to react with novel responses (Fiss & Hirsh, 2005) individuals often found themselves reacting through the mental models (Kwantes & Boglarsky, 2007) lenses, and schemata known to color the manner in which we make sense of the world in which we live (Essounga, 2009; Hofstede, 2001; Kwantes & Boglarsky, 2007).

As a result, individuals approach sensemaking differently in the two countries. In the United States, when confronted with uncertainty and ambiguity, the sensemaking process focuses on the reason of the happenings, in view of preventing a repeat of them. In France, the fact finding mission and sensemaking will rather focus on a deep analysis of the surrounding events leading to the triggering event (Combes, Lafourcarde, Thisse, & Toutain, 2011; Dedieu, 2010; Garcia-Mira et al., 2006; Le Coze, 2008; Le Coze, 2010). In today's global economic environment there is only one reality that transcends the differences in national cultures and is clear for individuals across all cultures. In essence, the answer is an economic recovery consisting of getting world economies to the point where they start picking up steam instead of continuing to lag, stagnate, or frankly regress (Bricogne et al., 2012; Patton, 2012). This is the reason we are offering the following typology of sensemaking and leader's success. Success of the leader is defined in this study as resulting in getting the economy out of its current slump to a place where individuals stop talking of jobless or economic recoveries with no growth or very little growth (Ancona, 2010; Izzo, 2012).

6. Typology of Sensemaking and Leader's Success

We are proposing a hypothetical model that could be assessed using Multiple Regression. The researcher may use Multiple Regression when seeking to calculate either a single or several independent variables. In this discussion we focus on sensemaking, a process that ensues as a reaction to uncertainty, ambiguity, and complexity (Fiss & Hirsh, 2005; Nonaka, 2007; Rutledge, 2009; Vuori & Virtaharju, 2012). The literature underscored that an event may be the trigger to sensemaking (Dedieu, 2010; Le Coze, 2008; Moss, 2001), thereupon calling for a timely response, using the right amount of resources, and calling upon an in-depth knowledge of the situation, including past, current, and future knowledge of the circumstances (Nonaka, 2007; Le Coze, 2008; Le Coze, 2010; Rutledge, 2009).

Thus, the following variables can be hypothesized as making up the independent composite construct, sensemaking: (1) E for event, as in the magnitude of an event acting as a trigger; (2) T for time, as in the appreciation of the urgency of the situation; (3) R for resources, as in the quantity of resources utilized to solve the problem; (4) K for knowledge, as in the past, current, and future knowledge of the surroundings of the event, and also (5) C for national culture, as in the national culture of the countries under review. In other terms, the null hypothesis can be framed as follows:

$$YDM = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5, \text{ where}$$

$x_1 = E$ = event (magnitude of event)

$x_2 = T$ = time (appreciation of time pressure)

$x_3 = R$ = resources (quantity of resources)

$x_4 = K$ = knowledge (past, current, and future)

$x_5 = C$ = national culture.

In the case of national culture, one dimension, masculinity, may be used as a proxy for culture. In this dimension, the relative higher U.S. score of 62 compared to the French score of 43 denotes a corrective and pragmatic U.S. society versus a more permissive and romantic French society. Given performance drives the US

as the notion of welfare society drives the French psyche (Hofstede & Hofstede, 2005), the sensemaking process is not carried out in a similar fashion. In this particular model, the event, time, resources, knowledge and national culture are hypothesized to predict the optimal decision making outcome, which is expected to lead to recovery. Thus, decision making (Y_{DM}) is equal to the constant (a), plus the sum of the five sensemaking independent variables, multiplied by their respective regression slope, b_1, b_2, b_3, b_4, b_5 . The constant (a) belongs rightly in this equation due to the fact that only by virtue of being in existence, individuals in all societies are subject to the likelihood of facing a triggering event.

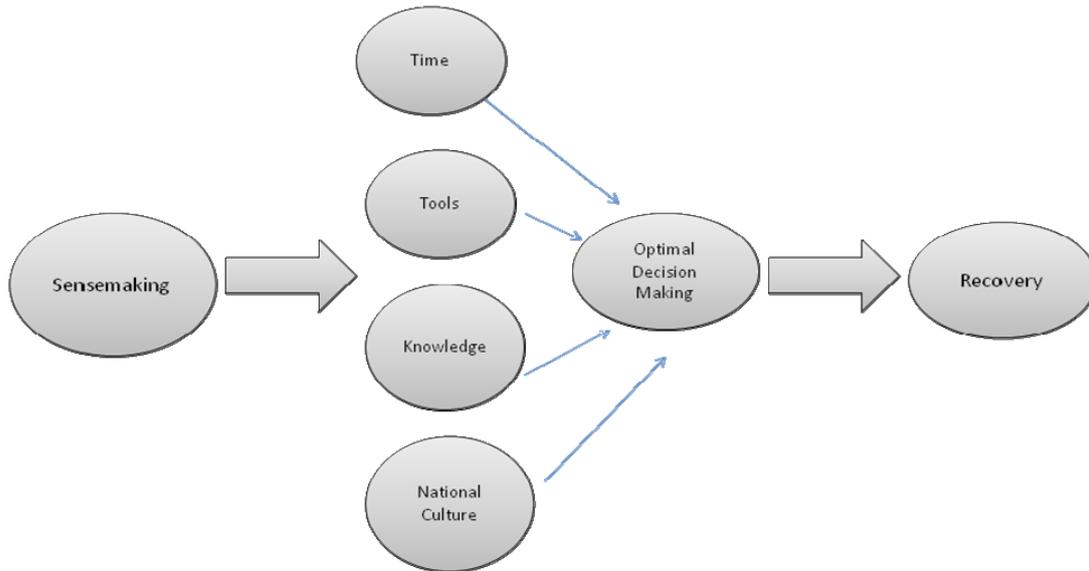


Figure 1 Theoretical Model of Sensemaking and Optimal Decision Making

Table 1 Five-layer Framework of Sensemaking Variables

	None	Poor Decision Making (DM)	Average DM	Good DM	Optimal DM
Event	X	X	X	X	X
Time		X	X	X	X
Resources			X	X	X
Knowledge				X	X
Nat. Culture					X

7. Conclusion and Implications for Future Research

7.1 Usability

The model of sensemaking and decision making offers the potential to assist public officials and other decision makers to consider variables whose combination is likely to result in the kind of decision making that if applied, would lead to economic recovery. Policymakers should be interested in analyses of this kind as they continue to work to ameliorate the current economic condition. Economists will take interest in the application of sensemaking in a cross-cultural environment, as the world's economies continue to be intertwined in the era of globalization. Although we did not test the model offered in this discussion, a valuable research addition would empirically test this hypothesis to continue building a theory of sensemaking and leader's success in an environment other than that of organizations looking for improved performance.

7.2 Future Directions

Collecting data in order to test the hypothesis offered would provide insight into the validity of this hypothesis. Individuals in the United States, France, and other countries around the world appear helpless in finding solutions that would effectively cause a shift towards a positive outlook of their countries' respective economies. To obtain the highest probability of an optimal decision, the explanatory variables proposed in this study, including the realization of the time constraints, the importance of committing the needed level of resources, developing and deploying adequate knowledge to reflect on the situation, and taking into account the country's national culture, far outweigh any benefits of the certainty of an economic crisis condition.

Although it is true that there is such a time as a time to reflect, there is just as much a time to act upon one's reflection. In the United States, we pride ourselves in being able to take quick action in order to remedy adverse situations. In France, it is customary to reflect deeply for the sheer need to do so, extending the understanding of the phenomena under study to its tiniest dimension. Today, it is necessary for both countries, and many others to acknowledge a somber reality. In these trying times, it is critical to innovate and develop novel ways to reverse the current trend. Adopting sensemaking behaviors as proposed in this study is one step toward that direction.

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Study Brand Resonance on Taiwan Hospital Industry

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Abstract: Hospital is a service industry with high risk, skill intensity, complexity, variability and customization characteristics. To build a strong brand and convey a positive brand image to medical market, it is important and critical to win customers' (i.e., patients') trust and loyalty. The authors summarized related brand theories and employed the customer-based brand equity perspective to explore the relevant factors on brand resonance in hospital industry by conducting a 26 question survey. This empirical study has been conducted in a midsize teaching hospital located in Taichung City Taiwan in May, 2011. All 147 respondents of this research are the hospital's outpatients. Findings from this study show that two factors: "the hospital's overall look, appearance and feel" and "the hospital's trustworthiness", are the relevant factors for consumers' judgments, consumers' feelings and consumer-brand resonance. This implied that visual aesthetic would influence customers' brand association with brand image. Hospital facility managers should be aware of the ability of the physical environments on influencing consumers' cognitions, emotions and behaviors. The authors propose that improvements on spatial aesthetic and investment in servicescapes could add value for stakeholders. The authors suggest future researchers to further analyze the effect of servicescapes' impact on customers' and employees' behavioral responses.

Key words: brand salience; brand performance; brand image; consumers judgment; consumers feelings; consumer-brand resonance; physical surroundings

JEL code: M31

1. Introduction

Vargo and Lusch (2004) propose a view that marketing inherits a model of exchange from economics that had dominant logic focused on intangible resources (e.g., service quality, brand, reputation, innovation, culture). Gronroos (2006) and Gummesson (1979) demonstrated that customer preferences are influenced by interactions with employees as well as physical resources. We believe that in service industry, a well-marketing strategy must consider both the firm's tangible and intangible resources. The power of a brand resides in the minds of customers (Keller, 2001). What then could affect the customers' perception of a firm's brand quality? To create a total brand experience, firms must plan the right directions (Haeckel, Carbone and Berry, 2003). As a firm's marketer, the question of what is the right direction for building a firm's brand often comes to mind. As well as issues such as how to get the right brand attributes for brand positioning and how to decompose the branding work to get the

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right communication plan. To be a brand manager, his/her perspective needs to reflect the state-of-the-art thinking from both academic as well as industry point of view (Keller, 1993; Wyner, 2003). According to Bitner, Faranda, Hubbert and Zeithamal (1997), service experiences are the outcomes of interactions between organizations, related systems/processes, service employees and customers. Are there other hidden factors that could influence customers and brand relationship? And, how customers' service experiences connect and associate with brand image and construct their brand meanings? What is the key mediator that could convert intangible service experience to brand image? This study aims to explore the relationship between brand and customers and to understand what the key factors that have impact on consumer brand resonance.

Brand equity theory (Aaker, 1991; Keller, 1993; 2001; Wood, 2000) conceptualizes that four components: brand awareness, perceived quality, brand loyalty and brand association form the equity of the brand. To build a strong brand (Aaker, 1995; Keller, 2001; Berry&Seltman, 2008) is now becoming not only a theoretical but practical issue for the service business sector to compete resources with others in the ever-rising competitive environment. Service quality theory (Parasuraman, Zeithamal & Berry, 1985) emphasizes on distinguishing the factors during delivering service process that would influence the customers' perceived quality. It enables us the way to define the impact of service quality on brand equity. Servicescapes theory (Bitner, 1990; 1992) considers the important role of physical surroundings in consumption settings under the reason that the service generally is produced and consumed simultaneously, and a consumer is often experiencing the whole service within the firm's physical facility. Clues management theory (Berry, 2003; Berry&Carbone, 2007; Berry&Seltman, 2008) defines on categorization of the functional clues, mechanic clues and humanic clues and suggests on how to orchestrate the clues effectively.

Hospital is a service industry with high risk, high labor and skill intensity, high complexity and customization characteristics. To build strong brand and convey the positive brand image to medical market effectively is an important and critical marketing activity to win customers' and in this case patients' trust and loyalty. There is always competition in a free choice society. In consumer marketing, brands often provide the primary points of differentiation between competitive offerings (Wood, 2000). Building a strong brand is considered to provide a host of possible benefits to a firm. Numerous studies have shown that high quality brands tend to perform better financially, yielding higher returns on investment (Keller, 2001). The key issue to be resolved in our hyper-competitive marketplace is how to excel our brand from those of the competitors and improve brand knowledge that has been created in consumers' mind (Keller, 1993; 2001). Due to constantly evolving nature of brand perception, that both the consumer and the marketer have important role to play in this dynamic branding process (Johar, Sengupta & Aaker, 2005). The power of the brand and its ultimate value to the firm resides with customers. The success of those marketing efforts depends ultimately on how well consumers respond (Keller, 2001) and on how well understood the individually different characteristics of their consumer taxonomies (Clark and Goldsmith, 2005). This empirical study was held in Lin Shin Hospital (LSH), a regional teaching hospital in Taichung Taiwan. The 750 beds hospital is a midsize hospital established in 1999. The hospital superintendent (owner-manager) has invested much capital in recent year to strengthen in the healthcare area of emergency, critical care ability and oncology treatment capacity. The superintendent believes that LSH branding strategy must highlight to the public on the state-of-the-art medical equipment the hospital is using and the renowned physician make up. The marketer of the hospital takes into consideration the superintendent's vision and has made an effort to promote on public's recognition of the hospital's critical care capability. One of the major themes to build a strong brand is concerned with establishing bonds between the brand and the target (Rothschild, 2001). The author summarized related brand theories and employed the customer-based brand equity perspective to explore the relevant factors on

brand resonance in hospital industry by conducting a 26 question survey. This empirical study was held in LSH. In this study, we try to explore what is the key factor that bonds the case of LSH and its customers. Three areas are of interest. They are as follows: (1) How well the LSH's brand salience, brand performance and brand imagery in customers' mind? (2) How brand salience, brand performance and brand imagery affect consumers' judgments and feelings? (3) What factors consequently influence consumer brand resonance? To address those three questions, we began with a review of consumer and marketing related literatures to better understand brand concept and brand knowledge contexts. We started with Keller's Customer-Based Brand Equity (CBBE) perspective and adapt Keller's brand building approach by considering the healthcare industry specific traits to form a scale items for examining which are the bonding factors for the hospital's brand and its target customers.

2. Literatur Review

Managers are looking for ways to enhance their brands so they can improve customer loyalty (Fram & Mccarthy, 2003). Customer-based brand equity (Keller, 1993) is defined as the differential effect of brand knowledge on consumer response to the marketing of the brand and it occurs when the consumer is familiar with the brand and hold some strong brand associations in memory. Customers always have an overall experience when they interact with a firm—influenced by sensory and emotion clues—evokes a value perception that determines brand preference (Haeckel et al., 2003; Brakus et al., 2009). Understanding the content and structure of consumer-brand relationship knowledge through consideration of the larger whole in which the relationship is embedded is important because they influence what comes to mind when a consumer think about a brand (Keller, 1993; Fournier, 1998). Companies that interact with customers cannot avoid giving them a total experience. This means the feelings customers take away from their interaction with both a firm's services and atmospheric stimuli (Haeckel et al., 2003; Bitner, 1990; 1992; Brakus, 2009). In this section we describe the six brand related terms.

2.1 Brand Salience

Brand salience is a key construct to establish a brand. Salience is the underpinning of the brand's architecture. Brand salience relates to aspects of customer awareness of the brand. In other words, how easily and often the customers can recall and recognize a brand. This does not limit to the brand's name, logo, and symbol. Most of service marketers ignore and neglect the tangible part and only emphasize on intangible aspect such as service quality, service skill and service attitude etc. But the intangible nature of services makes them difficult for customers to evaluate prior to purchase (Berry, 1995). In this article, we attempt to explore whether the functional salience is more important than tangible salience in hospital industry.

2.2 Brand Performance

In service institutions, brand salience is represented by the service function. The firm can tell customers about the brand directly in their communications. Customers hear about brands' information from others by words of mouth. All the customers' hearing, seeing, and feelings depend on what the firm or organization has performed. The service itself is at the heart of brand equity. It is the primary influence of what consumers experience of a brand (Keller, 2001). According to Brakus et al. (2009), brand experience is as sensations, feelings, cognitions, and behavioral responses evoked by a brand's design, identity, communications, and environments. Brand salience must be meaningful through brand performing by organizations' employees. Keller (2001) points out that brand performance can transcend the "ingredients" that make up the service to encompass aspects of the brand that augment these ingredients. With the more different performance dimensions, the more the brand is differentiated

and results a strong brand position.

2.3 Brand Imagery

Conveying a brand image to a target market is a fundamental marketing activity (Park, Jaworski and MacInnis, 1986). Brand imagery refers to the set of associations linked to the brand that consumers hold in memory (Keller, 1993) and it is how people think about a brand abstractly rather than what they think the brand actually does. It refers to more intangible aspects of the brand. It deals with the extrinsic properties of the product or service. Keller (1993, 2001) assumes that user imagery may focus on broader issues in terms of perceptions of a group as a whole rather than just one type of individual. For example, customers may believe that the brand of which he has chosen is used by numerous people and therefore view the brand as “popular” and ranked high socially. Consequently, brand imagery can be seen as the function that attempts to meet customers’ psychological or social needs. We hypothesize that customers’ brand image establishment is a psychological linking process. It involves the user’s profiles, events, past history, personality, values and related experience.

2.4 Consumer Feelings

Brand feelings are customers’ emotional reactions and responses with respect to the brand. Consumers may construct mental representations or “picture” of alternatives and assess how the anticipation feeling toward these brands. Feelings are generally associated with specific cognitions such as appraisals, beliefs and thoughts. Several findings suggest that feelings convey information in and of themselves. Pham (2004) speculates that affective feelings may play a role in judgment and decision-making. Pham’s thought relate a close connection between the phenomenology of feelings and the rule of thinking and suggest that feelings are interpreted through some thinking rules. With regard to Pham’s (2004) proposition that the main contribution of the feelings-as-information lies in the very idea that feelings could be treated as sources of information and its reliance could affect judgment and decision making. A person experiencing a specific affective state tends to draw inferences that are consistent with essential characteristics of the situation that brands elicited. Keller (2001) proposes six types of brand-building feelings, including warmth, fun, excitement, security, social approval and self-respect. We think that warmth, security, social approval, and self-respect are the crucial attributes of evoking the customers’ brand feelings in the healthcare service industry. Especially, security is the most important feeling in the high-risk and highly-uncertain medical service field. When the feeling of security, comfort, and self-assurance are present, it eliminates worries and anxieties. Gaining social approval is another factor that would influence the customers’ decision on selecting a crucial medical treatment and cure solution. Social approval is positive feeling of others about the chosen decision. The approval results from others’ direct acknowledgement of the customer using the brand. Self-respect occurs when the brand makes consumers feel better about themselves. It is very important in hospital industry to convey self-respect feeling to consumers because of the nature of highly contact characteristic. It is sometimes inevitable to expose patients’ body to diagnose and provide treatment. How to convey the feeling of being-respected and satisfactory about the service delivery is an important issue for hospital marketers.

2.5 Consumer Judgments

How consumers respond to the brand is about what customers think or feel about the brand. Consumer’s judgment is a rational process including collecting the clues, analyze the data gathered, considering referent opinions and then results in a judgment. Marketers need to know how customers put together all the different performance and imagery associations for the brand to form different kinds of opinions. According to Keller’s (2001) CBBM theory model, there are four aspects that influence consumers’ judgments. They are brand quality, brand credibility, brand consideration and brand superiority. Brand quality is the basic and the most important

attribute that customers may hold toward a brand and customers may form judgments that transcend specific brand quality concerns to consider broader issues related to the firm or organization. Customers may form judgments with respect to the firm or organization behind the brand. Eliciting strong and favorable brand attitudes is important but it is insufficient if customers do not consider the brand for possible usage. Brand consideration is an important factor in terms of building brand equity. No matter how highly regarded or credible a brand may be, unless the brand receives serious consideration and is relevant, customer will always keep a brand at a distance and never will embrace and use it.

2.6 Consumer Brand Resonance

Brand resonance refers to the nature of the relationship that customers have with the brand and whether they feel that they are “in synch” with the brand (Keller, 2001).

Keller breaks it down into four categories, including attitudinal attachment, behavioral loyalty, sense of community, and active engagement. Marketer needs to know that branding’s goal is not only to establish strong imageries or feelings about the brand. It needs to translate customers to actually make a purchase and favorable decision. We could say that the successful brand-branding occurs when customers are willing to invest time, energy, money, or other resources into the brand. In other words, for bottom-line profit results, the branding process has costs that must generate sufficient purchase frequencies and volumes to justify this cost.

3. Measurement

A questionnaire exploring the bonding factors between hospital brand and their target consumers is developed. The questionnaire was tested in a pilot study with five managers who were debriefed with regard to the questionnaire items. All scale used a 0–10 scale system with 10 being “strongly agree” and 0 being “strongly disagree”.

4. Primary Database

The survey randomly selects 147 respondents from LSH customer base. All 147 respondents provided complete responses resulting in 147 observations available for analysis. LSH provides both outpatient service and inpatient service. In this study we employed purposive sampling method and questionnaires were administered at ten different outpatient departments on May 2011 at LSH. Table 1 summarize the sample of 147 and the demographic characters of samples.

Table 1 Sample Data Description (N = 147)

Item	Grouping	Amount	%
Gender	Male	n = 67	(45.6%)
	Female	n = 80	(54.4%)
Age	<30 years old	n = 39	(26.5%)
	30~50years old	n = 76	(51.7%)
	>50years old	n = 32	(21.8%)
Education	junior high	n = 31	(21.1%)
	Senior high	n = 33	(22.4%)
	College	n = 74	(50.3%)
	Graduate	n = 9	(6.1%)
Classify	First come	n = 27	(18.4%)
	Subsequent visit	n = 120	(81.6%)

Table 2 displayed the reliability coefficient that assesses the consistency of entire scale.

Table 2 Measure of Reliability

Dimension	Cronbach's Alpha
Brand Saliency	0.934
Brand Performance	0.955
Brand Imagery	0.951
Consumer Judgment	0.975
Consumer Feelings	0.973
Consumer Brand Resonance	0.958

5. Results

Table 3 Descriptive Statistics for Mean, the SD and Ranking (N = 147)

Measures	Mean	SD	Ranking
Brand Saliency	6.4711	1.83397	(4)
X1: LSH has excellent doctors	6.6599	1.98797	8
X2: LSH owns the state-of-the-art medical equipments	6.6259	1.85875	10
X3: LSH has critical medical care ability and capacity	6.2721	2.15990	21
X4: LSH has good medical treatment on a variety of tumor disease	6.3265	2.01421	20
Brand Performance	6.8554	1.61726	(1)
X5: LSH service is effective and efficient	6.5442	1.82911	14
X6: LSH's staffs are courteous and helpful	7.1429	1.63019	1
X7: How much do you like about the look ,feel, and other aspects of LSH	6.9388	1.71306	2
X8: Compared to others, is LSH's overall performance higher or lower	6.7891	1.71708	4
Brand Imagery	6.5483	1.73222	(3)
X9: How well do you think of using "trustworthy" to describe LSH	6.6803	1.75166	7
X10: How well do you think of using "genuine" to describe LSH	6.6190	1.72545	11
X11: How well do you think of using "clean" to describe LSH	6.5986	1.95728	12
X12: How well do you think of using "patient-first" to describe LSH	6.4898	1.93867	15
X13: How well do you think of using "team-medicine" to describe LSH	6.3946	2.03247	18
Consumer Judgments	6.5939	1.73861	(2)
X14: LSH understand your needs, wants and desires	6.6259	1.86243	9
X15: LSH care about your opinions	6.6803	1.77882	6
X16: LSH's medical awareness and skills are reliable and credible	6.7415	1.75206	5
X17: What is your rating on LSH's medical service quality	6.8435	1.75835	3
X18: Do you agree that LSH is unique in hospital industry	6.0748	1.96576	25
Consumer Feelings	6.4065	1.85963	(5)
X19: Do you think that LSH gives you a feeling of warmth	6.3878	2.01518	19
X20: Do you think that LSH gives you a feeling of security	6.4762	1.93147	16
X21: Serviced by LSH gives you a feeling of social-approval	6.1701	1.94575	23
X22: Does LSH gives you a feeling of being-respected	6.5918	1.84226	13
Consumer Brand Resonance	6.1173	2.00477	(6)
X23: I consider myself a loyal customer to LSH	6.4422	2.04447	17
X24: I would be delighted to talk with others about LSH	6.2517	1.96142	22
X25: I will closely follow related news about LSH	5.7007	2.27076	26
X26: Would you like to recommend LSH to others	6.0816	2.20370	24

Study Brand Resonance on Taiwan Hospital Industry

Table 3 shows us that X6 (LSH's staffs are courteous and helpful) has the highest average mean score 7.1429, X7 (the look, feel, and other aspects of LSH) gets the second high average score 6.9388, and the third one is X17 (LSH's medical service quality) with average score 6.8435. According to the above outcome, it numerically describes the customers' view of the hospital. In general, it shows that LSH has good brand performance especially in humanistic clues as like "staffs are courteous and helpful" and physical clues like "the look, feel and other aspects" yield the well brand judgment of the hospital as having good medical service quality. We found that brand performance has positive association with consumers' brand judgment. Also the firm's employees and firm's overall servicespaces both effect the consumers' perception of service quality.

Table 4 provides the descriptive statistics for all variables used in the study. Analysis of the correlation matrix, criterion of "consumer judgments" has high degree of relationship ($\geq .850$) with three predictors that are "effective and efficient", "the look, feel, and other aspects" and "trustworthy". There are six predictors, "effective and efficient", "staffs are courteous and helpful", "the look, feel, and other aspects", "trustworthy", "genuine" and "patient-first", of which have high degree of relationship ($\geq .850$) with the criterion of "consumer feelings". Five predictors including "effective and efficient", "the look, feel, and other aspects", "trustworthy", "genuine" and "team-medicine" present correlation ($\geq .800$) with criterion of "customer-brand resonance". In sum, three predictors, "effective and efficient", "the look, feel, and other aspects", "trustworthy", have positive high relationship with the three criterions of "consumer judgments", "consumer feelings" and "consumer-brand resonance".

Table 4 Correlations of Predictor Variables with Criterion Variables (N = 147)

Predictor Variables	Criterion Variables												
	Consumer Judgments				Consumer Feelings					Consumer Brand Resonance			
	X14	X15	X16	X17	X18	X19	X20	X21	X22	X23	X24	X25	X26
X1	0.737**	0.699**	0.742**	0.772**	0.743**	0.731**	0.776**	0.644**	0.755**	0.728**	0.728**	0.578**	0.671**
X2	0.731**	0.722**	0.738**	0.789**	0.729**	0.759**	0.786**	0.698**	0.767**	0.754**	0.757**	0.656**	0.716**
X3	0.531**	0.526**	0.607**	0.558**	0.579**	0.552**	0.578**	0.644**	0.548**	0.657**	0.744**	0.600**	0.614**
X4	0.650**	0.647**	0.719**	0.657**	0.703**	0.677**	0.696**	0.674**	0.680**	0.652**	0.759**	0.652**	0.654**
X5	0.850**	0.833**	0.811**	0.815**	0.833**	0.866**	0.845**	0.801**	0.865**	0.767**	0.805**	0.725**	0.811**
X6	0.821**	0.809**	0.828**	0.820**	0.796**	0.819**	0.818**	0.746**	0.863**	0.735**	0.756**	0.676**	0.761**
X7	0.864**	0.875**	0.862**	0.865**	0.823**	0.860**	0.864**	0.802**	0.860**	0.821**	0.822**	0.754**	0.811**
X8	0.789**	0.796**	0.815**	0.822**	0.802**	0.823**	0.836**	0.753**	0.811**	0.766**	0.758**	0.725**	0.750**
X9	0.866**	0.857**	0.854**	0.853**	0.831**	0.901**	0.900**	0.826**	0.895**	0.797**	0.843**	0.749**	0.830**
X10	0.814**	0.830**	0.799**	0.802**	0.798**	0.852**	0.854**	0.844**	0.845**	0.749**	0.812**	0.768**	0.821**
X11	0.719**	0.738**	0.691**	0.688**	0.643**	0.746**	0.752**	0.750**	0.724**	0.584**	0.699**	0.685**	0.724**
X12	0.844**	0.826**	0.794**	0.774**	0.810**	0.838**	0.850**	0.786**	0.822**	0.707**	0.785**	0.723**	0.778**
X13	0.839**	0.831**	0.806**	0.790**	0.827**	0.820**	0.833**	0.790**	0.790**	0.747**	0.748**	0.814**	0.724**

Note: ** $P \leq 0.01$ (two-tailed test).

We employee step-wise regression analysis, and the results are provided in Table 5. It analyzes thirteen predicting variables (X1~X13) and three criterion variables (consumer judgment, consumer feelings, consumer-brand resonance). It is found that three key variables, X7 (the look, feel, and other aspects), X13 (team-medicine) and X9 (trustworthy) relates to consumer judgments. Especially the predictor X7 (R square = 0.807) shows to be the coefficient of determination of customer judgments. There are also three variables adopted by the consumer feelings regression model, the variable of X9 (trustworthy) has high R square of 0.838. Four

significant variables influence consumer-brand resonance, they are X9 (trustworthy), X7 (the look, feel, and other aspects), X3 (severe medical care ability and capacity) and X13 (team-medicine). Specifically, regression results show that the variables of X7 (the look, feel, and other aspects) and X9 (trustworthy) are simultaneously as the predictors of the 3 criterion variables of consumer judgments, consumer feelings and consumer-brand resonance.

Table 5 Results of Multiple Regression Analyses (N = 147)

Criterion Variables	Predictor Variables	R square	F change	Sig. F change
Consumer Judgment	X7	0.807	606.539	0.000***
	X7+X13	0.862	57.945	0.000***
	X7+X13+X9	0.884	26.102	0.000***
Consumer Feelings	X9	0.838	749.874	0.000***
	X9+X7	0.868	32.604	0.000***
	X9+X7+X10	0.884	20.461	0.000***
Consumer Brand Resonance	X9	0.723	378.882	0.000***
	X9+X7	0.772	30.840	0.000***
	X9+X7+X3	0.814	32.503	0.000***
	X9+X7+X3+X13	0.830	12.986	0.000***

6. Discussion and Conclusion

We have investigated the relationship between hospital brand and its target customers, exploring the key bonding factors that influence the consumer-brand resonance.

To what extent will the brand be on top-of-mind and easily be recalled or recognized? The result shows that the overall look of the hospital makes the first impression in customers' mind. As previous researchers (e.g., Berry & Seltman, 2008; Brakus et al., 2009; Bitner, 1990; 1992; Berry & Carbone, 2007; Haeckel et al., 2003) propose that mechanic clues such as physical surroundings will influence first impressions and expectations. Mechanic clues come from the tangibles that offer a physical representation of the intangible service. Customer-brand experiences are evoked as sensations, feelings, cognitions and behavioral responses by brand-related stimuli that are part of a physical design and décor elements that create favorable atmosphere to imprint a good image and feel in customers mind. In this empirical study, we indirectly proved Bitner (1990, 1992) perspective of stressing the ability of physical environment to influence behaviors and to create a strong image is particularly apparent for service business. The more risk, complexity, variation, and personnel associated with the service, such like medical care, the more likely customers are to actively seek unbiased information for assurance of the brand. Healthcare service is a unique service in many ways, including it inherently imposes stress and uncertain feelings to its customers. Mayo Clinic, a world-famous hospital, with its facility design philosophy centering on patient-first. The goal for Mayo Clinic architects and designers are to create service spaces with soothing theme; the colors, the artwork are all specifically designed to soften the feeling of the facility and create positive distractions to help relieve stress of occupants (Berry & Seltman, 2008).

The result shows that trustworthiness simultaneously varies with the predictor variables of consumer judgments, consumer feelings and consumer-brand resonance and reflects the importance of establishing trust relationship in healthcare industry. According to Bitner, Faranda, Hubbert and Zeithaml (1997), in some situations such like healthcare industry, customers can actually be involved in co-creating the service in terms of their high level of participation, and in such services customers have essential production roles that, if not fulfilled, will affect the nature of the service outcome. Morgan and Hunt (1994) conceptualize trust as prevailing when one party has

confidence in an exchange partner's reliability and integrity. It is a willingness to rely on an exchange partner in whom one has confidence. If one believes that a partner is trustworthy without being willing to rely on that partner, trust is limited. Healthcare services are high risk, embodying variability and uncertainty, it makes customers more considerate about whether the institution can offer qualified medical quality or not. Trustworthiness implicitly implies that there are bonding relationship between the brand and customers. We believe that the mechanic clues and the humanistic clues are the prerequisite key factors for constructing trustworthiness. As Berry, Seltman and Carbone (2007, 2008) say, mechanic clues come from inanimate objects, including sights, smells, sounds, tastes, textures, facilities, equipment, furniture, displays, lighting, and other sensory clues offer visual presentations of the service quality and assurance, communicating to the customers without words. Good aesthetics and sensory quality evoke customers' favorable sensory perception, feelings and emotions. Therefore results in good brand association with the firm (Brakus et al., 2009) and good brand partner quality.

In summary, two factors influence customer brand resonance, the tangible part is physical surroundings and the intangible part is trustworthiness. Strong brand awareness incorporates visible physical surroundings that make people believe what he/she has heard before. Chinese old proverb say, "Seeing something once is better than hearing it a hundred times." It demonstrates the important function of tangible cues and through tangible object it can reinforce intangible meanings.

7. Managerial Implication

This study highlights the critical importance of understanding of firm-specific brands and consumers' relationships with them for advancement of marketing strategy. We believe that to establish the proper brand identity according to industry differentiation traits is the foundation work before building and constructing brand awareness. Brand managers need to acknowledge his/her industry's specific characteristics and identify these traits to connect corporate responsibility performance to create unique brand meanings. In other words, to build a hospital's brand in a truly meaningful and authentic way, marketing managers need to look back to their roots. Nowadays, hospitals are facing ever rising challenges that customers constantly request organizations to offer higher medical service quality for them. As a service organization, lack of a core identity usually result in an overall marketing program that can be best characterized as a series of one-time defensive or reactive service-line improvements instead of developing a clear strategic brand platform to compete with rivals. In medical managerial practices, very often, the hospital's service promotion are narrow and limited to releasing information such as installation of a high-tech equipment or joining of a renown doctor who is major in specific technology for treating tough diseases, instead of a clear brand strategy that can promote the firms true strengths and brand value. Marketers within healthcare institutions need to take time to step back and thoroughly understand your organization's brand philosophy to reflect and clarify the firm's true brand identity. It is not just a one-time reaction but a continuous strategy work affecting both corporate responsibility performance and financial performance. This study implies that customers' preferences of choosing a medical institution are much more than physician's expertise. This research has pointed out areas that brand marketers need to look into in order to create unique value compare with the rivals. Nonetheless, this research identifies noises where less resource can be allocated. In choosing hospital services, customers think more than managers and service providers often realized (Berry & Seltman, 2008). Holistic customer experiences begin and end long before and after actual transactions incorporate mechanical and affective attributes (Haeckel et al., 2003). With increasing competition in the

marketplace and cost of promotion, marketers need to be alert and adoptive to the ever-changing environment by managing the tangible and intangible resources effectively. Marketers also need to orchestrate the clues in order to deliver both intrinsic and extrinsic values for creating a total experience. Well-designed, targeted marketing approach is necessary for the survival of the business (Haeckel et al., 2003; Clark & Goldsmith, 2005). Making a good first impression in the public spaces of a medical facility is important. Private spaces such as wards and examination or procedure rooms need to be well-managed. This is because patients spend the most time here and are likely to be under the most stress. A strong brand is a safe place for customers (Berry & Seltman, 2008). Staff members strengthen or weaken the institution's reputation with each service encounter. Especially in labor-intensive, interactive service, all customers' experiences are mostly with the people performing the service. As a result, service providers' performances convey the trustworthiness to customers. Building trust as a marketing tool and using the strongest possible strategy for customer bonding (Berry, 1995) is critically important in healthcare service firms. The empirical result implies that visual aesthetic will influence customers' brain association with brand image. Hospital facility managers should be aware of the ability of the physical environments on influencing consumers' cognitions, emotions and behaviors. The improvement on spatial aesthetic and investment in servicescapes could add value for stakeholders.

8. Future Research

This empirical study samples outpatient department of a regional teaching hospital. Future research should examine whether similar outcomes is applicable to the inpatient department. Based on the findings, future research may also explore on how well building design and aesthetics perceptions effect consumer brand resonance and how to establish a strong trust with patients. Further research may also explore on the antecedents and long-term consequences of brand resonances. Specifically, regarding antecedents, how exactly are consumer-brand resonance evoked by brand-related stimuli and how should marketers manage antecedents to create brand experiences that build brand equity. Finally, internal marketing helps generate higher level of employee brand loyalty. Regarding brand-loyal employees, future research may also investigate on how well they can translate into a firm's operational efficiency.

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Usefulness of Cash Flow in Business Decision Making

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Abstract: This research examines the relationship between future cash flows with earnings, dividend per share, depreciation, and capital expenditures. Using a sample of 100 companies listed on Bursa Malaysia between 2005 until 2010, this study applies ordinary least squares and fixed-effects method to estimate the regression model. Findings reveal that Earnings before Interest, Taxes, Depreciation and Amortisation (EBITDA), Capital Expenditure and Depreciation significantly influence the Free Cash Flow. EBITDA and Capital Expenditure has shown positive relationship with free cash flow, but Depreciation reflects a negative relationship with free cash flow. These findings may provide useful information to investors and businessmen on how to plan and manage the cash flow.

Key words: cash flow; usefulness; decision-making; business

JEL codes: M41, M49

1. Introduction

A company has an opportunity to pay its investors a dividend only after it has become profitable and able to generate free cash flow. Free cash flow is the amount of cash a company generates from minus its capital expenditures. Basically, free cash flow is the amount of cash a company has left after it is made necessary investments back into its business. Free cash flow gives a company a lot of options. Companies have the option of using the excess cash either to invest back into their business or pay out as dividends. Sometimes companies will try to grow a new area of their business and they will want to work their cash back into the business because they think they could get a strong return on investments. Or sometimes companies would not have new areas to invest in and they feel that by paying a dividend, their shareholders can earn a better return on cash than they can earn for them. This is why low-growth companies paying high dividends (Farshadfar, Ng and Brimble, 2008).

Some analysts believe that free cash flow is more important than other measures of financial health because it measures how much cash a company has and can generate. This differs from other measures, which are sometimes accused of using both legitimate and illegitimate forms of accounting to make a company look healthier than it really is. On the other hand, Return on Equity (ROE) is an accounting method similar to Return on Investment (ROI) that is used as a measure of a company's profitability that reveals how much profit a company generates with the money raised from the shareholders. It is also a measure of how well the free cash flows of the company used the reinvested earnings to generate additional earnings, equal to a fiscal year's after-tax income (after preferred share dividends but before common share dividends. Providing new evidence on the

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relative in formativeness and analytical ability of earnings and cash flow measures appears to be of particular significance and renewed importance given the corporate collapses (e.g., Enron, World.Com, HIH Insurance, One.Tel) in the US and Australia (Farshadfar, Ng and Brimble, 2008).

The objective of this study is to provide some Malaysian evidence on the cash flow from operations as reported in the cash flow statement in forecasting future cash flow. This study has focused on future cash flows as the predictive measure, as they are of significant relevance to the users of accounting information in their various decision-making contexts, such as investing and lending (Bowen et al., 1986). This study expects a positive relationship between EBITDA, Dividend per Share, Depreciation, Capital Expenditures and Free Cash Flow. The remainder of the paper is organized as follows: the next section presents the literature reviews. The third section explains on the research methodology. The fourth section discusses on the results and discussions. The final section concludes and highlights the limitation of the study.

2. Literature Review and Hypotheses Development

A previous studies used by past research to assess the efficiency of increasing depends on the relationship between growth, future cash flows, and future earnings. Researchers such as Greenberg, Johnson, and Ramesh (1986), Dechow, Kothari, and Watts (1998), Barth, Cram and Nelson (2001), and Kim and Kross (2005) find an association between current period growth and next period cash flows by regressing cash flows in period $t+1$ on cash flows and accruals in period t .

This study uses operating income after depreciation which is consistent with the work of Sloan (1996) and Richardson et al. (2005). The attractiveness of item operating income after depreciation is that it excludes non-recurrent items such as extraordinary items, discontinued operations, special items and non operating income, taxes and interest expenses. Free cash flow is the amount of funds available to all investors in a firm after paying for all expenses and meeting investment needs. The definition of free cash flow is the adjusts earnings by adding back depreciation and amortization and subtracting changes in working capital and capital expenditures (Hough, 2005; and Richardson et al. 2005). A slight variation to this definition of free cash flow includes net operating profits after tax (NOPAT) instead of net earnings (Brigham and Ehrhardt, 2005; Greenwood and Scharfstein, 2005). Such adjustment excludes interests (and other extraordinary items), thus providing with a theoretically sound free cash flow for valuation purposes since it avoids double counting of cost of debt both in the free cash flows and in the cost of capital.

2.1 Difference between Earnings and Cash

Moreland (1995) claims that at least as important as a company's profitability is its liquidity—whether or not it's taking in enough money to meet its obligations. Companies, after all, go bankrupt because they cannot pay their bills, not because they are unprofitable. Many investors also care less about the cash flows, as their main concern is profits. For example, investors may be more concerned on looking at a firm's income statement and not the cash flow statement.

A company's cash flow can be defined as the number that appears in the cash flow statement as net cash provided by operating activities, or "net operating cash flow", or some version of this caption. However, there is no universally accepted definition. For instance, many financial professionals consider a company's cash flow to be the sum of its net income and depreciation (a non-cash charge in the income statement). While often coming close to net operating cash flow, this professional short-cut can be way off the mark and investors should stick

with the net operating cash flow number.

Finger (1994) explains the reasons why there is a conflict between net income and cash flow is that the income statement is updated with any sales made or revenues earned as soon as the deal is done. However, payments for such sales may be actually received much later. Hence, though the net income shows profits and the entrepreneur in reality has made money, it is not yet available as cash flow and cannot be spent. Yes, cash flow and profit are different. Cash flow is the money that flows in and out of the firm from operations, financing activities, and investing activities. Profit, also is called net income, is what remains from sales revenue after all the firm's expenses are subtracted.

2.2 Which to choose: EBITDA or Cash Flow?

Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA) is essentially net income with interest, taxes, depreciation, and amortization added back to it, and can be used to analyze and compare profitability between companies and industries because it eliminates the effects of financing and accounting decisions¹. EBITDA is a good metric to evaluate profitability, but not cash flow. EBITDA also leaves out the cash required to fund working capital and the replacement of old equipment, which can be significant. Consequently, EBITDA is often used as an accounting gimmick to dress up a company's earnings. When using this metric, it's key that investors also focus on other performance measures to make sure the company is not trying to hide something with EBITDA.

Based on this property, Koller, Goedhart, and Wessels (2005) refer to EBITDA as a "good measure of extremely low short-term ability to meet interest payments. Most companies cannot survive very long without replacing worn assets". Why has EBITDA received much attention in corporate finance? Why not simply use cash flows? Possible reasons include: (1) EBITDA involves less components than cash flows making it easier to forecast, (2) EBITDA in general looks better since it tends to be larger than the cash flows of operations, and (3) the statement of cash flow has been common, but many managers are not as familiar with the statement of cash flows. One consideration is that a company's capital expenditures typically vary from year to year. Income measures try to account for this by unnaturally distributing the expense of capital investments over the years in which they will be producing value for the company.

The definitions and modeling of accruals versus cash flows by Healy (1985) and Sloan (1996) have been considered as the standard in the accounting and economics literature. The most important contribution of work by Sloan (1996) and Richardson et al. (2005) are the recognition that even though accruals provide valuable information about current and future earnings, such as EBITDA. EBITDA is a good measure of operating profit. By including depreciation and amortization, EBIT counts the cost of making long-term investments (Richardson, 2006). However, EBITDA is only used if depreciation expense (also called accounting or book depreciation) approximates the company's actual cost to maintain and replace its long-term assets. In other words, it will affect merely on free cash flows because a company substitutes debt for equity or vice versa. However, EBITDA does not reflect the earnings that accrue to shareholders since it must first fund the lenders and the government. Thus, based on the above arguments, this study posits that:

Hypothesis 1: There is a relationship between EBITDA and Free Cash Flow.

2.3 Dividend per Share (DPS) and Free Cash Flow

Sloan (1996) and Richardson et al. (2005) found that even though accruals provide valuable information

¹ <http://www.investopedia.com/terms/e/ebitda.asp#ixzz1o1VJpy0>.

about current and future earnings, such as EBITDA, and DPS. Therefore the real definition of DPS is that the sum of declared dividends for every ordinary share issued. DPS is the total dividends paid out over an entire year (including interim dividends but not including special dividends) divided by the number of outstanding ordinary shares issued. It was obvious that some company did not pay share according to their financial performance.

DPS is used to calculate the dividend yield. Dividends over the entire year (not including any special dividends) must be added together for a proper calculation of DPS, including interim dividends. Special dividends are dividends which are only expected to be issued once so are not included. The total number of ordinary shares outstanding is sometimes calculated using the weighted average over the reporting period. Thus, this study expects that DPS has a relationship with free cash flows. Following the arguments above, this study hypothesize that:

Hypothesis 2: There is a relationship between DPS and Free Cash Flow.

2.4 Capital Expenditures and Free Cash Flow

In this section, this study focuses on the market reaction to capital expenditure announcements in the backdrop of Jensen's (1986) free cash flow hypothesis. According to the free cash flow hypothesis, the market response to an investment increase will depend on a firm's marginal investment opportunities and the level of its free cash flow. The empirical research of Sloan (1996) found that firms' capital expenditure (CAPEX) has a significant impact on working capital management. The study also found that the firms' free cash flows, which were recognized as a dependent variable, have a significant relationship with working capital management. The study also establishes that the firms' free cash flows which was known as a control variable, has a significant relationship with working capital management. In addition to the growth, leverage, firm size, type and size of expenditures such as finance, operating and capital expenditures have dissimilar impacts on working capital. Therefore, this study predicts that CAPEX may influence free cash flows. The following hypothesis is developed:

Hypothesis 3: There is a relationship between CAPEX and Free Cash Flow.

2.5 Depreciation and Free Cash Flow

Researchers (Barth et al., 2001; Al-Attar and Hussain, 2004), in their findings support the view that reported cash flow from operations has greater ability in predicting future cash flows than accrual-based earnings using Malaysian data. Depreciation is a noncash expense that reduces the value of an asset as a result of wear and tear, age, or obsolescence. Most assets depreciate, and must be replaced once the end of their useful life is reached. There are several accounting methods that are used in order to write off an asset's depreciation cost over the period of its useful life. Because it is a non-cash expense, depreciation lowers the company's reported earnings while increasing free cash flow. Based on the arguments above, this study posits that:

Hypothesis 4: There is a relationship between Depreciation and Free Cash Flow.

3. Research Methodology

This is a cross-sectional study using regression models of company (i) and time (t). This study examines the future cash flow with Earnings before Interest, Taxes, Depreciation and Amortisation (EBITDA), Dividend per Share (DPS), Capital Expenditure (CAPEX) and Depreciation. The following regression model is established.

3.1 Research Model and Measurement of Variables

The following is the model use in this study:

$$FCF_{it} = \beta_0 + \beta_1 EBITDA_{it-1} + \beta_2 DPS_{it-1} + \beta_3 CAPEX_{it-1} + \beta_4 Depreciation_{it-1} + \varepsilon_{it} \quad (1)$$

Free Cash flow is a dependent variable. Cash flow represents the flow of cash earned and spent in a company.

Cash flow reveals how much money is available in a company at a given time and reflects the company's true health. If a company is paying out expenses faster than it is generating revenue, it can result in poor cash flow. Independent variables are Earnings before Interest, Taxes, Dividend per Share, Depreciation and Amortisation, Capital Expenditure and Depreciation. The OLS regression model and FEM are applied to examine the predictive ability of earnings and cash flow measures in forecasting future cash flows.

4. Results and Discussions

4.1 Descriptive Statistics

Table 1 Descriptive Statistics

Variable	Sample	Mean	Std. Dev.	Min	Max
FCF	500	94282.5	661891	-2234617	8695279
DPS	500	0.07212	0.2987776	0	3.43
EBITDA	500	80704.14	353115	-571665	4747647
CAPEX	500	31144.14	150531.6	-10502	2623001
DEP	500	14834.04	38509.32	2	447644

Note: FCF = Free Cash Flows, EBITDA = Earnings before Interest, Taxes, Depreciation and Amortisation, DPS = Dividend per Share, DEP = Depreciation, CAPEX = Capital Expenditures.

Table 1 shows the mean value of FCF is 94282.5 ranging from minimum value of -2234617 to maximum value of 8695279. Mean value of DPS is 0.07212 ranging from min 0 to maximum 3.43. EBITDA shows mean of 80704.14 with min of -571665 and maximum of 4747647. For CAPEX, the mean is 31144.14 with minimum of -10502 and maximum of 2623001. Lastly for DEP has mean of 14834.04 with minimum value of 2 and maximum value 447644.

4.2 Correlation Matrix

Table 2 Correlation Matrix for Dependent and Independent Variables

	Year	FCF	DPS	EBITDA	CAPEX	DEP
Year	1.0000					
FCF	0.0239	1.0000				
DPS	0.0168	0.1148**	1.0000			
EBITDA	0.0441	0.6106***	0.2888	1.0000		
CAPEX	0.0764	0.1111**	0.0321	0.1823	1.0000	
DEP	0.0569	0.3279***	0.1901	0.6256***	0.8231**	1.0000

Note: ** Significant at 0.05 (2 tailed), *** Significant at 0.01 (2 tailed); FCF = Free Cash Flows, EBITDA = Earnings bBefore Interest, Taxes, Depreciation and Amortisation, DPS = Dividend per Share, DEP = Depreciation, CAPEX = Capital Expenditures.

Table 2 reports the correlation matrix for the five variables used in the model. The Pearson correlation coefficients; is within the range of -1 to 1. Closer to 1 means a strong correlation and a negative value indicates an inverse relationship. The correlation coefficient between free cash flows and EBITDA is 61.06% and DEP is 32.79% are significant at 1% level. CAPEX 32.79% correlation and DPS 11.48% correlation value are significant at 5% level with FCF.

4.3 Multivariate Regression Analysis

This study uses multiple regressions to test the model. First, by using Ordinary Least Square (OLS) and

followed by Fixed Effect Model (FEM).

Table 3 Regression Models

Panel A: OLS					
Variable	Hypothesis	Coef.	Std. Err.	t	P> t
EBITDA	H ₁	1.741759	296563.6	13.65	0.000
DPS	H ₂	226207	296563.6	0.76	0.446
CAPEX	H ₃	1.903387	.4066906	4.68	0.000
DEP	H ₄	-10.16132	2.003351	-5.07	0.000
R ²		0.4095			
Panel B: FEM					
EBITDA	H ₁	1.73948	.1285212	13.53	0.000
DPS	H ₂	251428	298134.8	0.84	0.399
CAPEX	H ₃	1.88426	.4102425	4.59	0.000
DEP	H ₄	-10.0424	2.017984	-4.98	0.000

Note: EBITDA = Earnings before Interest, Taxes, Depreciation and Amortisation, DPS = Dividend per Share, CAPEX = Capital Expenditures, DEP = Depreciation.

Based on Table 3, hypotheses H₁, H₃ and H₄ supported the study based on OLS and FEM regressions. With reference to Panel A, findings show that EBIT and CAPEX were positively related with Free Cash Flows, but DEP has shown a negative relationship with Free Cash Flows. Result explains that when EBIT is higher, more cash flows are available in the hands for the company to operate. In terms of DEP, the low value of DEP enhances the Free Cash Flows. As depreciation is a non-cash, so depreciation lowers the earnings while increasing the Free Cash Flows. Thus, this finding is consistent with Barth et al. (2001), Al-Attar and Hussain (2004).

Next, FEM was utilised in this study to analyze the impact of variables that vary over time. The fixed effects model is a useful specification for accommodating individual heterogeneity in panel data. When it comes to interpret the fixed effects model, the most important point is that, is this model good for this study? Is p-value of this study is significant? The p-value is significant at 0.000 for EBITDA, CAPEX and DEP. From Table 3, the t-value for EBITDA was 13.53 and coefficient value of 1.73948, CAPEX with t-value 4.59 and coefficient 1.88426, and DEP with t-value -4.98 and coefficient of -10.0424. The t-values test the hypothesis that each coefficient is different from 0. To reject, the t-value has to be higher than 1.96 (for a 95% confidence). In sum, EBITDA, CAPEX and DEP have shown a significant value and significant at 1% level.

5. Conclusion

In sum, this study examines the relationship between free cash flows with Earnings before Interest, Taxes, Depreciation and Amortisation, Dividend per Share, Depreciation and Capital Expenditures. Results indicate that there is a positive relationship between Free Cash Flow with Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA) and Capital Expenditure (CAPEX), whilst a negative relationship Depreciation (DEP). In terms of contribution, these findings contribute to the local and overseas studies on the use of free cash flows by companies in managing their businesses. The outcome of this study will be useful to policy makers, investors and businessmen in planning and predicting the future cash flows of the companies. In terms of limitation, this study includes limited variables related to free cash flows. Future research may consider more variables and test the relationship with corporate performance.

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The Influence Mentoring Status and Function to Auditor-supervisor Relationship with Organizational Justice and Auditor Feeling as Mediating

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Abstract: Formulation of the problems in this study are as follows: (1) How does the status of mentoring on the quality of the auditor-supervisor relationships directly? (2) How does organizational distributive and procedural justice to the quality of the auditor-supervisor relationship? (3) How does mentoring functions on distributive and procedural organizational justice directly? (4) How does the organizational perceptions of distributive and procedural justice mediates the relationship status of mentoring and quality auditor-supervisor relationship? (5) How does the auditor feelings mediate the relationship of distributive justice and procedural and quality auditor-supervisor relationship? The population in this study is the auditors who worked in Public Accounting Firm (KAP) in Central Java and Yogyakarta. From the analysis results can be concluded that: (1) The results of the testing instrument are some items that are not valid, thus excluded from the analysis. (2) Classic assumption test results free from the disease so that the results of the regression analysis is free from bias. (3) There was no effect on the quality status of the mentoring relationship auditor supervisor directly. The status of mentoring in this study the majority of non-protége. (4) There are influences of procedural justice organizations to the quality of auditors supervisor relationship, but for the organization of distributive justice is not significant. (5) There are the influences of mentoring functions on distributive and procedural justice organization. (6) Organizational justice perceptions mediate the relationship status of mentoring relationship quality auditor's supervisor. (7) Feelings mediate the effect of auditors' organizational justice to the quality of auditors supervisor relationship. (8) The study implies that the quality of the auditor relationship is affected by how the mentoring functions and organizational procedural fairness, because the quality of those relationships is crucial for the advancement of auditors.

Key words: status of mentoring; a mentoring function; quality of the relationship between auditors and supervisors; justice organization; auditor feelings

JEL code: M42

1. Introduction

Mentor/supervisor is the more experienced member of organization and plays a role in individual's career development and improvement. Mentor is an individual involved in assigning the role for the new and less

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experienced employees (protégés/mentee). *Mentoring* is a formal or informal relation involving two individuals, mentor/supervisor and mentee/junior. In a study Miller et al. (2010) examined two potential ways of improving the quality of auditor-supervisor relation: (1) mentoring relation and (2) perceived organizational justice. The public accountant employee having mentor affects significantly the higher work performance (Viator et al., 2005). Many studies on mentoring study its effect on the work outcomes such as job commitment, job satisfaction and turnover, but do not study the interpersonal relationship such as supervisor subordination relationship (Miller, 2010). In previous studies carried out by some researchers such as Viator and Scandura (1991), concerning the accounting mentoring, it can be found that having mentoring affects positively the organizational commitment, job satisfaction, career expectation, and post promotion. Meanwhile in Miller et al., (2010) mentioned that the organizational justice analysis finds two components of organizational justice: procedural and distributive justices. Distributive and procedural justices will be correlated positively to the task performance, interpersonal facilitation, and work dedication (Wang et al., 2010). Distributive and procedural justices are also important factors used as the predictor of job satisfaction, organizational commitment, and turnover intention (Elanain, 2008); procedural justice is also correlated directly to the employee's organizational commitment and job satisfaction (Witmer, 2010).

2. Literature Review and Hypothesis

2.1 Mentoring

Mentoring in simple sentence belongs to teaching (transfer of knowledge and competency) and counseling about an individual's (protégé's) lack of knowledge. Thus, Peer mentor help fill in this vacuum by providing critical horizontal communication and traditional mentoring function (Siegel, 1999). According to Clawson (1996), as the organization is flat and bureaucracy pyramid changes into oval and circle, the personnel seems frequently to be more peer for counseling. It is particularly true for the more formal organization with more different pyramid, but the finding applies less formally. However, many senior personnel may not understand, identify or even want to support new organization. Furthermore, the career personnel often have less technical skill becoming an integral part of flat organization structure (for example, working in a team). From the explanations from many previous studies, hypothesis 1 was made:

H1: There is an effect of mentoring status on the quality of auditor-supervisor relationship directly.

2.2 Organizational Justice

Organizational justice consists of two measurements in the perception on the justice in workplace, namely distributive and procedural justice. When organizational justice affects the auditor's evaluation on its non-mentor superior, this study on organizational behavior shows that auditor that observes higher level in procedural justice than in distributive justice, will report higher quality of relationship with their non-mentor supervisor. This study explores this finding in the public accounting scope through the following hypothesis:

H2: There is an effect of distributive and procedural organizational justices on the quality of auditor-supervisor relationship.

H3: There is an effect of mentoring function on the distributive and procedural organizational justices directly.

2.3 Quality of Auditor-Supervisor Relationship

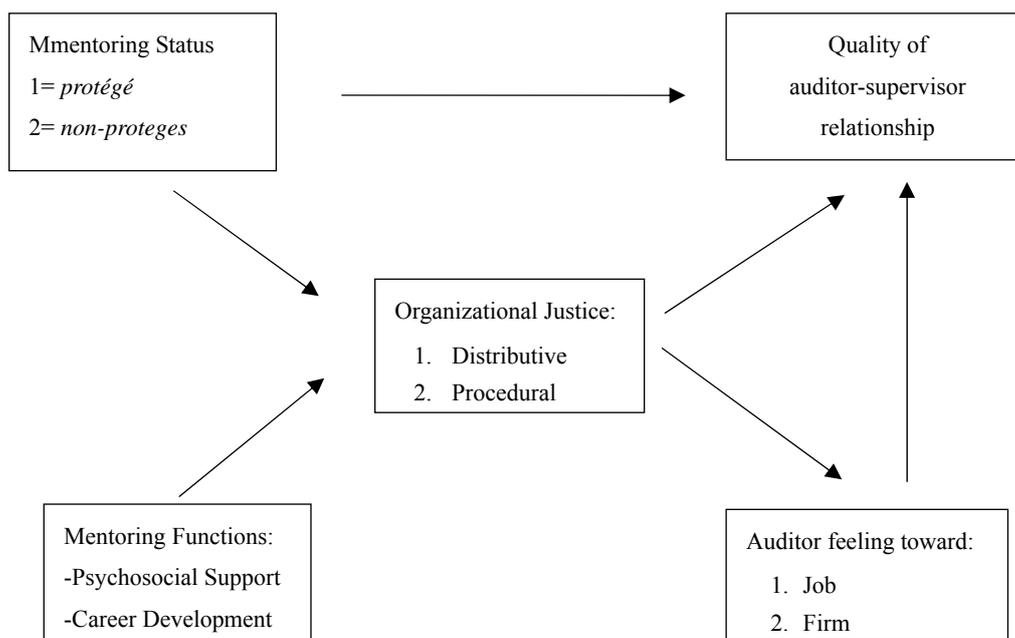
From the elaboration on mentoring and organizational justice associated with the higher level of supervisor quality, Miller et al. (2010), Siegel et al. (2001) in Miller et al. (2010) finds that mentoring is associated with the

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higher level of perceived organizational justice, then the accompanying question will arise: does mentoring affects directly the auditor-supervisor relationship or does mentoring create a higher level of organizational justice that in turn it makes the quality level of auditor-supervisor relationship higher? This question is likely answered with the mediation by the effect of organizational justice. Therefore, these following hypotheses arise:

H4: Perceived distributive and procedural organizational justices mediate the relationship between the mentoring status and the quality of auditor-supervisor relationship

H5: Auditor feeling mediates the relationship of distributive and procedural justices to the quality of auditor-supervisor relationship.



3. Result and Discussion

The result of regression model analysis on the effect of mentoring status (Sm) and Mentoring Function (FM) on the quality of auditor-supervisor relationship (Khas) is presented in Table 1. The result of model analysis on the effect of Mentoring Status on the quality of auditor-supervisor (Khas). The result of model analysis on the effect of Mentoring function on the quality of auditor-supervisor relationship (Khas).

Table 1 Regression Analysis on the Effect of Mentoring Status on the Quality of Auditor-supervisor Relationship (Khas)

Independent Variable	Dependent Variable: Quality of Auditor Supervisor Relationship (Khas)				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constanta	11.165	7.144		1.563	0.128
mentoring Status (Sm)	0.251	1.739	0.021	0.144	0.886
mentoring Function (Fm)	0.802	0.182	0.634	4.404	0.000***
R square	0.411				
Adj. R ²	0.373				
F test	10.797				
Sign. F	0.000***				

Source: Processed primary data.

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The result of regression model analysis on the effect of organizational justice (Kd and Kp) on the Quality of auditor-supervisor relationship (Khas) is presented in Table 2. The regression coefficient value of organizational justice (Kd) independent variable is 0.014, while the result of model analysis on the effect of organizational justice (Kd) on the Quality of auditor-supervisor relationship (Khas).

The regression coefficient value of organizational justice (Kp) independent variable is 0.583, while the result of model analysis on the effect of organizational justice (Kp) on the Quality of auditor-supervisor relationship (Khas).

Table 2 Regression Analysis on the Effect of Organizational Justice (Kd and Kp) on the Quality of Auditor-Supervisor Relationship (Khas)

Independent Variabel	Dependent Variable: Quality of Auditor Supervisor Relationship (Khas)				
	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Constanta	14.617	7.280		2.008	0.053*
Organizational Justice(Kd)	0.030	0.419	0.014	0.071	0.944
Organizational Justice (Kp)	1.392	0.472	0.583	2.950	0.006***
R square	0.351				
Adj. R ²	0.309				
F test	8.376				
Sign. F	0.001***				

Source: Processed primary data.

The result of regression model analysis on the effect of Mentoring status (Sm) and Mentoring Function (Fm) on the Organizational justice (Kd) is presented in Table 3. The regression coefficient value of Status mentoring independent variable is 0.186, while the result of model analysis on the effect of Mentoring Status on the Organizational justice (Kd).

The regression coefficient value of Mentoring function independent variable is 0.587, and the result of model analysis on the effect of Mentoring function on the Organizational Justice (Kd).

Table 3 Regression Analysis The effect of Mentoring Status (SM) and Mentoring Function (Fm) on Organizational Justice/Distributive Justice (Kd)

Independent Variabel	Dependent Variable: Organizational Justice (Kd)				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constanta	6.006	3.271		1.836	0.076*
mentoring Status (Sm)	1.059	0.796	0.186	1.331	0.193
mentoring Function (Fm)	0.350	0.083	0.587	4.196	0.000***
R square	0.443				
Adj. R ²	0.407				
F test	12.342				
Sign. F	0.000***				

Source: Processed primary data.

The result of regression model analysis on the effect of Mentoring status (Sm) and Mentoring Function (Fm) on the Organizational justice (Kp) is presented in Table 4. The regression coefficient value of Status mentoring independent variable is 0.058, while the result of model analysis on the effect of Mentoring Status on the

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Organizational justice (Kp). Based on the result of analysis in Table 3, the regression coefficient value of Mentoring function independent variable is 0.659, while the result of model analysis is on the effect of Mentoring function on the Organizational Justice (Kp).

Table 4 Regression Analysis the effect of Mentoring Status (Sm) and Mentoring Function (Fm) on Organizational Justice/Procedural Justice (Kp)

Independent Variabel	dependent Variable : Organizational Justice (Kp)			t	Sig.
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta		
Constanta	6.099	2.863		2.130	0.041**
mentoring Status (Sm)	0.292	0.697	0.058	0.419	0.678
mentoring Function (Fm)	0.349	0.073	0.659	4.777	0.000***
R square	0.460				
Adj. R ²	0.425				
F test	13.185				
Sign. F	0.000				

Source: Processed primary data.

The result of regression analysis on Organizational justice is as mediator. Based on the calculation above, it can be interpreted that in the step 1, the Mentoring variable (Sm & Fm) evidently affects significantly the Khas ($\beta = 0,583$, $p < 0.05$). In step 2 when Mentoring (Sm & Fm) and Organizational justice are regressed simultaneously to predict the Khas, Mentoring (Sm, Fm) remains to be with its significant effect with 0.211 value at $p < 0.05$. The auditor of organizational justice does not affect significantly the Khas with 0.071 value at $p < 0.05$. t-value for Mentoring (Sm & Fm) variable after being mediated is 2.246 at significance level of 0.027 (lower than 0.05) and t-value of Organizational justice is 5.981 at significance level of 0.000 (lower than 0.05) indicating that Organizational justice significantly the Khas. F-value of 66.721 at significance level of 0.000 (lower than 0.05), it indicates that Mentoring (Sm & Fm) and Organizational Justice as mediator simultaneously affect significantly the Khas. After the Mentoring (Sm & Fm) variable is mediated by Organizational justice, the coefficient of determination (R²) value becomes 0.533, while the adjusted R square value is 0.525 that previously is 0.385, so there is an increase of 0.140. It means that 52.5% of Khas variable can be explained by Mentoring (Sm & Fm) and Organizational justice variables. The rest of 47.5% is affected by other variable excluded from this research model.

After the Organizational justice (Kp) variable evidently affects significantly the Quality of auditor-supervisor relationship (Khas), the next step is the Auditor feeling as mediating variable controlled by job satisfaction variable. Based on the calculation above, it can be interpreted that in the step 1, the Organizational justice (Kp) variable evidently affects significantly the Khas ($\beta = 0,583$, $p < 0.05$). In step 2 when Organizational justice and Auditor feeling are regressed simultaneously to predict the Khas, the Organizational justice remains to be with its significant effect with 0.211 value at $p < 0.05$. The auditor feeling does not affect significantly the Khas with 0.071 value at $p < 0.05$.

T-value for Organizational justice variable after being mediated is 2.246 at significance level of 0.027 (lower than 0.05) and t-value of Auditor feeling toward is 5.981 at significance level of 0.000 (lower than 0.05) indicating that Auditor feeling toward significantly the Khas. F-value of 66.721 at significance level of 0.000 (lower than 0.05), it indicates that Organizational Justice and Auditor feeling toward as mediator simultaneously affect significantly the Khas. After the Organizational justice variable is mediated by Auditor feeling toward, the

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coefficient of determination (R²) value becomes 0.533, while the adjusted R square value is 0.525 that previously is 0.385, so there is an increase of 0.140. It means that 52.5% of Khas variable can be explained by Organizational justice and Auditor feeling toward variables. The rest of 47.5% is affected by other variable excluded from this research model.

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Reality Assessment of the Corruption in Libya and Search for Causes and Cures

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Abstract: Many of the reports that has prepared by some of an organizations interested in this area pointed the presence of multiple potential reasons behind the emergence of the phenomenon of corruption in Arab societies, known as system corruption. These reports also showed that for those reasons, although they exist in one form or another in all societies but ranging differ in importance between the community and another. Therefore, this paper aims to study Problems of corruption in Libya through to answer the following question: What is the extent of the spreading of the corruption in Libya and what the ability to control corruption, promote transparency for access to good governance of the state?. In order to answer this question, this requires knowing: the perspective of citizens to the extent of the spread of the corruption in Libya, what are the reasons for the spread of corruption what kinds of corruption most widespread, and finally, what are the required suggestions that can assist the government in combating corruption. To achieve this aims had been relying on a questionnaire distributed to a sample of Libyan citizens which who having an interesting in this area. The questionnaire covering all of above aims through the formulation of a number of questions relating to each aim of the aims of study, and then analyzing these data that have been collected and discussed to derive the answer to the questions of the study.

Key words: corruption; control of corruption; Libya

JEL codes: N4, N47

1. Introduction

Libyan council for public planning (CPP) in its 2004 report had affirmed Libya facing a corruption challenges as indicated by the country low score in the Corruption Perceptions Index (CPI) and that the crisis of corruption has become the major cause accounting for why the ruling regime in Libya was unable to achieve its socio-economic and development objectives. This and many other factors including but not limited to; the weakness and backwardness of the administrative and functional legislations to keep pace with developments in the field of public administration; the continuous change in administrative framework; the cancellation or merger of administrative units resulting in the absence of clear lines of management. The resultant overlapping and conflicting jurisdictions; in addition to the poor and lack of attention to human resource development all led to weak performance of employees and inability to deal with the modern administrative system in public institutions

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and thus undermine the effectiveness and efficiency of the state and its institutions thereby resulting in poor service delivery and failing public trust in the state and its governance institutions and agencies (CPP, 2004). Therefore, this paper aims to answer the question: (What is the extent of the spreading of the corruption in Libya and what the ability to control corruption, promote transparency for access to good governance of the state?), through to answer the following questions:

- What is the respondents' perception on the status of corruption in Libya?
- What are the causes of widespread corruption in Libya on respondents' perception?
- What is the respondents' perception on the kinds of corruption which has spread due to lack of transparency in the mechanism of action of the government in Libya?
- What are the requirements for the combating of administrative corruption in governmental institutions in Libya?

2. Control of Corruption

Corruption whatever it forms or level is a phenomenon as old as the history of the human community. Known to all nations and communities large and small, rich and poor, the menace of corruption hit all the political systems and economic systems without exception, especially those under dictatorships. The phenomenon of corruption has been the subject of many studies and research in western countries. Therefore, the phenomenon of corruption is the economic and administrative corruption in general and the public sector in particular is the more serious obstacles that have faced and are still confronting the implementation of development plans in Libya. Due to its many different types of negative effects of corruption on different sectors of development it thus constitutes a significant impediment to the implementation of development strategy.

There are numerous definitions of what corruption entails. Corruption is defined by Shah A. (2006) as the exercise of official powers against public interest. Drawing from this definition, corruption is shown to adversely affect gross domestic product (GDP) growth, lower the quality of education, public infrastructure, and health services. In its own definition the, Asian Development Bank (2010) take the concept of corruption to entails behavior on the part of official in the public sector, whether political or civil servants, in whom they improperly and unlawfully enrich themselves, or those close to them, by the misuse of public power entrusted to them. Corruption according to Khan M.H (1996) is an act which deviates from the formal rules of conduct governing the actions of someone in a position of public authority because of private- regarding motive such as wealth, power or status. In similar stead Otite O. (2000) stated that corruption is the perversion of integrity or state of affairs through bribery, favor or moral depravity. Otite O. (2000) further stated that corruption takes place when at least two parties have interacted to change the structure or processes of society or the behavior of functionaries in order to produce dishonest, unfaithful or defiled situations.

3. Causes of Corruption

The following points stated below are the factors that can encourage corruption and the obstacles that may hinder the development of any country, as reported in the Official Gazette of the Republic of Serbia (2005):

- Economic: structure and transformation of ownership, excessive state intervention in the economy, disrespect for market rules and grinding poverty.

- Political: dictatorships, or outdated or inappropriate constitutions, manner of functioning of political parties, uncertain statehood status, long-term international isolation, existence of informal power centers, absence of consensus on strategic goals of development of the country.
- Legal: non-application or selective enforcement of regulations, legal gaps, non-harmonization of statutory laws, rules and regulations.
- Institutional: absence or dysfunction of institutions, insufficient co-ordination, staffing inadequacy, insufficient equipping, and incompetence of institutions.
- Historical: rapid changes in the system of social values and ethic.

4. Consequences of Corruption

Although the impact of corruption may vary across countries according to specific local context, political structures and legacy of the past, the most salient effects of corruption include:

- Corruption especially in the Arab World increases the risk of state capture by a cohort of political elite. Indeed most political systems in the MENA region are driven by the interest of the ruling party or of a minority elite, whose logics is to dominated by self preservation rather than public service.
- As a result, corruption can be seen as a factor of resistance to change as the ruling elite may be reluctant to give up the privileges and benefits they get from corrupt practices.
- Authoritarian governments are dominated by the logics of maintaining power and control over resources. To preserve power and privileges, governments necessarily restrict freedom and choice as well as opportunities for active citizens' voice and participation in the political and/or the economic processes.
- Reduced opportunities for political participation result in little opportunities for citizens to articulate their needs and leads to poor public management and inefficient resource allocation, with the likely reduction of expenditures on education and/or health services.
- Corruption also results in an increase in public investments that lend themselves to corrupt practices and diverts capital from more productive private sector activities to non-productive public projects, programmes and investments.
- The impact of grand corruption is visible across the region in the inequitable distribution of resources and national wealth. In most countries in the region, there is an obvious dichotomy that prevails between the wealthy and well-connected elites and the impoverished general public.

Corruption resulted in lots of negative cost for the public and by extension the state. The costs of corruption according to Gould D. J. and Amaro Reyes J. A. (1983) in their study on corruption include the following: Political costs which include the fact that corruption weakens the legitimacy of political institutions and therefore the government is less able to rely on the cooperation and support of the public. As a result of this, the government is compelled to resort to force and coercive tactics to maintain law and order and enforce it rule on the people. The resulting violence and political instability is such that will hinder political advancement and development of the state.

There are also the economic costs of corruption which include the fact that it leads to economic inefficiency and waste. This is because of its effect on the allocation of funds, on production, and on consumption. Part of the cost of corruption also relates to the fact that gains obtained through corruption are unlikely to be transferred to the investment sector, for example, since illegal money is either used up in conspicuous consumption or is transferred to foreign bank accounts. Such transfers represent a capital leakage to the domestic economy.

Furthermore, corruption generates a locative inefficiency by permitting the least efficient contractor with the highest ability to bribe high ranking government officials to be the recipient of government contracts.

In addition, since the cost of bribes is included in the price of the goods produced, demand tends to be reduced, the structure of production becomes biased, and consumption falls below efficiency levels. Thus, corruption lowers the general welfare of the populace.

Finally, the gains from corruption tend to draw labor away from productive engagements to non-productive but corrupt activities. Moreover, since corruption affects recruitment and promotion patterns, the most efficient employees may not be recruited at all and the allocation of positions may be inefficient. This situation may be exacerbated further if efficient and potential employees failed to compete for government positions because of moral, ethical and/or other reasons. By the same token, corruption directs employees' energies away from socially valuable activities toward less efficient corrupt activities.

There are also the bureaucratic costs of corruption that can generate administrative inefficiency and ineffectiveness by creating an atmosphere of distrust throughout all levels of public bureaucracies. Top administrators are discouraged from training their subordinates to undertake increased responsibilities, while their ability to supervise is also reduced. As a result, the delegation of authority needed for successful implementation is inhibited and frequently hindered altogether. In addition, patronage and nepotism tend to fill the ranks and file of the civil service with inept and incompetent individuals, thereby lowering the productivity of public bureaucracies and negatively affecting the provision of qualitative public service.

5. Research Design

In this study, quantitative method is used through the use of questionnaire which described in the coming paragraph is distributed to the five main ministries of Libyan government. Individuals that are personnel in those ministries are targeted as respondents. The Ministries include; Ministry of Education and Scientific Research, Ministry of Economy, Industry and Trade, Ministry of Health and Environment, Ministry of Planning and Finance, and Ministry of Infrastructures, The congress, Academic Institutions, Social Institutions, Media Institutions, and the Private Sector.

6. Population and Sampling

6.1 Population

The target population of this study is consisting of the Employees who are working in public sector, private sector, and civil society organizations in Libya. The work force in Libya estimated by Libyan government as one million, six hundred and thirty-five thousand, seven hundred and eighty-three workers (www.gpco.gov.ly, 2006).

6.2 Sampling

Based on the population which was mentioned above, this study Targeting employees at higher levels in some of the ministries, government institutions, private sector and civil society organizations (administrative leaders in the ministries targeted, managers at all levels, and some staff), in addition to some businessmen. The sample size of the study was 400, which is in support of Sekaran U and Bougie R. (2010, p. 384). This study used simple random sampling approach regarded as the most efficient design following the nature of this study. Sekaran (2003).

7. Method of Data Collection

For the method of data collection, in this study the closed ended format of questionnaire survey was used. Moreover, the study has adopted the Likert Scale is an extremely popular means for measuring attitudes. Respondents indicate their own attitudes by checking how strongly they agree or disagree with statements. Response alternatives: strongly agree, agree, uncertain, disagree, and strongly disagree (William G. Zikmund, 2003).

8. Structure of the Questionnaire

The questionnaire divided into four sections related to Control of Corruption: first section consists from four questions about respondent's perception on Control of Corruption. The second section; consists of eight questions related to respondent's perception about the causes that had led to spread in the corruption in Libya. Third section consists of five questions related to respondent's perception about the kinds of corruption that has spread as a result of lack of transparency in the mechanism of action of the government in Libya. The fourth section consists of ten questions related to respondent's perception about the requirements for combating administrative corruption in government institutions in the Libyan.

9. Descriptive Analysis

Varieties of techniques were used to describe quantitatively in summary form the data of the study. Thus, descriptive analysis involves analysis of means response rate. Furthermore, the researcher interpreted the mean score of each item based on five levels, i.e., strongly agree, agree, Neutral, disagree, strongly disagree, as follow:

Table 1 The Meaning of Mean Score of Each Item

Weighted Mean	Level
From 1.00 to 1.79	Strongly agree
From 1.80 to 2.59	Agree
From 2.60 to 3.39	Neutral
From 3.40 to 4.19	Disagree
From 4.20 to 5.00	Strongly disagree

Source: Abdel Fattah E. (2007), and Kuzu A. (2007).

10. Response Rate from Questionnaire

The researcher distributed 400 questionnaires to the respondents that constitute the study sample. The return rate for all questionnaires distributed by the researcher was 237 and this constitutes 59.25 percent of the distributed questionnaires. The researcher obtained a usable response rate of 230, which constitutes 97.04 percentages of the numbers of questionnaires returned by the study respondents and this amounted to what was utilized for the study analysis.

11. Results and Discussion

Result as expressed in table 2: indicated that the mean score for all respondents were as follow:

For question (1.1) on the position that (the state has a clear mechanism and modality for facing administrative corruption) the mean score was (3.65). This result shows that majority of the answers are expressed

disagreement to the statement that the state has clear mechanism and modality for combating the incidence of administrative corruption in government institutions which stand as an important obstacle to achievement of comprehensive development in the country.

Also the result of question (1.2) on the statement that the: (Government is fully transparent in the decision-making and implementation of projects), show that the mean score was (3.73). This result shows that majority of answers are expressed strong disagreement that the activities of government is as it relates to decision-making and projects implementation are fully transparent. The position of the respondents on the lack of transparency in the activities of the government in Libya were corroborated by the consistently poor rating of the Libya in international reports on transparency, accountability and the fight against corruption. Respondents expressed the position that the lack of transparency and accountability in the conduct of the activities of government has encouraged the spread of the incidence of official corruption and that this constitute a stumbling block to the attainment of comprehensive national development in the country.

The results of question (1.3) on the statement that (Government’s programmes were characterized by the existence of clear agenda thereby enhancing the accountability of the government on it performance of its functions) shows the mean score for respondents’ response was (3.81). This result shows that majority of the answers are implied that the respondents expressed strong disagreement with the statement that government’s programme’s were characterized by clear agenda for the citizens, rather most respondents were of the view that government programme’s for the citizens were marked by fuzziness of agenda. This informed the incidence of non-satisfaction on the ability of government to provide quality public service for the citizens.

The result of the question (1.4) on the position that the (spread of administrative corruption has not negatively affected the quality of public services provided by the Libyan government to its citizens) the respondents’ response mean score was (3.60). This result shows that majority of the answers meant that the government has to take critical decision on its effort at combating administrative and other forms of official corruption and also pay more attention and interest to the task of providing quality public services to the citizens.

As a result, General average to answer questions was (3.67) from (1 = strongly agree to 5 strongly disagree) this explains that the most of respondents perception have tended to emphasize that there is large spread of corruption in various bodies of the Libyan government. Thus, these results give the answer to the question: What is the respondents’ perspective on the status of corruption in Libya? This result had been confirmed by the World Bank through the Corruption Perceptions Index which showed the low rank of Libya in the Index not exceed (50th Percentile) during the period 1996–2010.

Table 2 Descriptive Statistics on Respondent’s Perceptions on the Control of Corruption

	N = 230	Minimum = 1	Maximum = 5	
The question				Mean Mean of all Qs
1.1 the state has a clear mechanism and modality for facing administrative corruption				3.56
1.2 Government is fully transparent in the decision-making and implementation of projects.				3.73
1.3 The government’s programmes have been characterized by the existence of a clear agenda for citizens, and this has gave rise to the accountability of government as it relates to the performance of its functions.				3.81 3.67
1.4 spread of administrative corruption has not negatively affected the quality of public services provided by the Libyan government to its citizens.				3.60

Note: Scale for answering; 1 = strongly agree; 5 = strongly disagree.

The Table 3: shows the results of questions (2-1 to 2-8) explained the respondent's perceptions on the causes that had led to rapid spread in the incidence of corruption in Libya.

The result of question (2.1) on (random decision-making in organizations), has mean score of (1.57). This result shows that majority of the answers are illustrated that government decision-making processes were often characterized by random picking rather than a clear adherence to scientific and rational processes.

The result of question (2.2) on the (lack of transparency in the performance of government functions) has respondents mean score of (1.61). This result shows that majority of the answers are implied that most of the respondents expressed strong agreement with the position that there clear absence of transparency in the conducts of the activities of government. This result upholds the result of question (1.2) on the lack of transparency in the manner in which government activities are conducted in Libya.

The result of question (2.3) on the issue of (weakness of accountability and follow-up in the conduct of the activities of administrative agencies of the state) reveals the mean score of was (1.49). This result shows that majority of the answers are indicated that respondents strongly agree that there is the absence of accountability in the conduct of the activities of government agencies and that the lack of accountability impacted on administrative agencies efficiency.

The result of question (2.4) on (the absence of clear vision and strategy by the government in the performance of its functions.) shows that the mean score for the respondents view was (1.79). This result shows that majority of the answers are indicated that the respondents strongly agree that there is the absence of clear strategy on the part of the Government in the conduct and performance of its functions. This lack of clear strategy partly resulted from the non adoption of scientific processes and modalities in the appointment of administrative leaders, the absence of accountability, and the lack of transparency in the conduct of the activities of the state and its agencies. ()

The result of question (2.5) on the issue of (inefficiency and lack of experience of some leaders' in senior level positions in public administrative agencies) has a mean score of (1.72). This result shows that majority of the answers are indicated that majority of respondents strongly agreed that there had been weakness in the efficiency of leaders in senior administrative posts within government agencies.

For question (2.6) on the (inability of government to take advantage of scientific expertise in the planning of development processes) the respondents mean score was (1.58). This result shows that majority of the answers are implied that majority of respondent strongly agree that the government has demonstrated consistent inability to take advantage of scientific expertise in the planning of development process and the implementation of development programme. This result upholds the result obtained on question (2.4) on the clear absence of strategy in the conduct of Government activities.

The result of question (2.7) on the issue of (the structural and spatial instability of the administrative apparatus of the State) has respondents mean score of (1.70). This result shows that majority of respondents are strongly agree on there is a marked instability in the structural and spatial organization of the administrative apparatus of government, and this stand be as obstacle to the achievement of comprehensive development by the Libyan state.

The result of question (2.8) on the issue of (non-implementation of laws for the reduction of corruption.) has mean score of (1.67). This result shows that majority of the respondents strongly agree that on there is a problem related to non-implementation of laws for the reduction of corruption in Libya. This result indicated that there is

the problem of the lack of implementation of the rule of law in addition to the country has adopted the political principle that abuses the tribal socio-political system with particular reference to the manner for the selection of leaders, regardless of the ability of these leaders to accomplish its tasks of administration and governance effectively (Mustafa A., 2007). The Weakness of the administrative leaders, as mentioned by Betamer A. (2003), has led to the public administration system in Libya is seriously suffering from poor planning and lack of human resources development. In addition to the inconsistency and instability that has characterized the structure and organization of the state in Libya over the decades as mentioned by Economic Sciences Research Center -Libya (2005). Thus, these results provided an answer of the question: What are the causes of widespread corruption in Libya on respondents' perception?

Table 3 Descriptive Statistics that Explained the Respondent's Perception on the Causes That Had Led to Spread in the Corruption in Libya

	N = 230	Minimum = 1	Maximum = 5	Mean	Mean of all Qs
The question					
2.1 Government decision-making processes were often characterized by random picking.				1.57	
2.2 Lack of transparency in the performance of government functions.				1.61	
2.3 Weakness of accountability and follow-up in the conduct of the activities of administrative agencies of the state.				1.49	
2.4 The absence of clear vision and strategy by the government in the performance of its functions.				1.79	1.64
2.5 Inefficiency and lack of experience of some leaders' in senior level positions in public administrative agencies.				1.72	
2.6 Inability of government to take advantage of scientific expertise in the planning of development processes.				1.58	
2.7 The structural and spatial instability of the administrative apparatus of the state.				1.70	
2.8 Non-implementation of laws for the reduction of corruption. Such as law (From where did you get this?)				1.67	

Note: Scale for answering; 1 = strongly agree; 5 = strongly disagree.

The results of questions (3-1 to 3-5) in the table 4: explained the respondent's perception on the lack of transparency in the mechanism and process of government activities and the weakness of accountability and effectiveness follow-up in the conduct of government policies and programmes and they manner they had served as obstacles limiting the implementation of development programmes in Libya.

Based on the result of question (3.1) on the position that the (lack of transparency in the process and mechanism of government activities and the weakness of accountability and effective follow-up have resulted in the spread of bribery), shows that the mean score for respondents view on the spread of bribery and corruption was (1.45). This mean that majority of the respondents were strongly agree that the spread of bribery and corruption remains one of the main obstacles militating against the implementation of development programmes by the state.

The result of question (3.2) on the position that the (lack of transparency in the process and mechanism of the government activities and the weakness of accountability and effectiveness of follow-up have resulted in the spread of Cronyism as giving or showing favors to friends without regard for their qualifications) has the mean score of (1.39). This result shows that majority of the answers are expressed strong agreement that the spread of mediocrity has been one of the main obstacles impeding the implementation of development programmes by the Libyan government.

In the same wise the result of question (3.3) on the position that the (lack of transparency in the process and

mechanism guiding government activities and the weakness of accountability and effective of follow-up have spurned the spread of favoritism) reveals the mean score was (1.49). This result shows that majority of the answers are implied that majority of the respondents have Almost a consensus that the spread of favoritism in the conduct of government business was one of the obstacles affecting the implementation of development programmes by the Libyan government.

For question (3.4) on the position that the (lack of transparency in the process and mechanism guiding the conduct of government activities and the weakness of accountability and effectiveness of follow-up have encouraged negligence in the management of public money), has a mean score of (1.38). This result indicated that majority of the respondents were expressed agreement with the view negligence in management of public fund contributed in manner as to impact on the effectiveness of the government performance and stands as impediment to the achievement of comprehensive development in the country.

Also the result of question (3.5) on the position that the (lack of transparency in the process and mechanism guiding the conduct of government business and the weakness of accountability and effective follow-up resulted in government weak performance and contribute to the absence of accountability) has a mean score of (1.42). This result indicated that majority of respondents were strongly agree that the cause of inefficiency in the conduct of government business is also as a result of the absence of accountability in the manner the activities of government are carried out in Libya. This has affected government performance in manners that it had resulted in the failure to achieve comprehensive development by the Libyan government. The results above shows that most of the respondents emphasizes that the lack of transparency in the conduct of government business led to the spread of problems such as; bribery, cronyism and nepotism. Thus, these results provided an answer of the question: What is the respondents' perception on the kinds of corruption which has spread due to lack of transparency in the mechanism of action of the government in Libya? And this was also confirmed by Jibril A. (2010), when he pointed out that one of the most widespread forms of corruption in Libya is administrative idleness, bribery, inflation of public procurement, fraud, and other forms of corruption.

Table 4 Descriptive Statistics of Respondent's Perception on the Kinds of Corruption in Libya

	N = 230	Minimum = 1	Maximum = 5
The question			Mean
3.1 Spread of Bribery.			1.45
3.2 Spread of Cronyism.			1.39
3.3 Spread of Favoritism in the operation of state institutions.			1.49
3.4 Negligence in the management of public fund.			1.38
3.5 Weakness of performance and the absence of accountability.			1.42

Note: Scale for answering; 1 = strongly agree; 5 = strongly disagree.

The table 5: indicates the results of questions (4-1 to 4-10) were used to explained respondent's perception about the requirements for combating administrative corruption in government institutions in the Libyan state.

The result of question (4.1) on the position that (to combat the phenomenon of administrative corruption in government institutions requires the State to establish an independent body entrusted with the task of combating administrative corruption.) shows that respondent's response mean score was (1.55). This result shows that majority of the answers are implied that the respondents strongly agree with the view that there is a need for the state to establish an independent institution, which will be task with the responsibility to combat administrative

and other forms of official corruption.

The result of question (4.2) on the position that there is the need to (review the labor and anti-corruption laws.) has a mean score of (1.65). This result shows that majority of the answers are indicated that respondents' agree with the position that the government urgently needs to conduct comprehensive review of its labor and anti-corruption laws on a regular basis as this will stimulate the achievement of high rate of development envisaged by the Libyan government.

The result of question (4.3) on the position that the (adoption of the principle of competence and expertise in performance as a guide when selecting administrative leaders in the State) has a respondents' mean score of (1.39). This result shows that majority of the answers of the respondents' held the view that one of the main causes militating against the successful implementation of development project by the state is the non-adoption of scientific process in the appointment of administrative leaders into government institutions.

The result of question (4.4) on the need for the (adoption of the principle of transparency in the conduct of the functions of government and its institutions.) has respondents' mean score of (1.48). This result shows that majority of the answers are implied that most of the respondents strongly agree on the need for transparency as one of the most important basic conditions that need to be met in the conduct of the activities of government in contemporary time. They also averred that this condition is one of the main factors that give confidence to investors and attract investment to any state.

The result of question (4.5) shows the mean score for respondents on the position that there was the need for the (adoption of the principle of overall strategic planning in the programs of the government.), was (1.48). This result shows that majority of the answers are indicated that the respondents strongly agree with the position that the government cannot achieve comprehensive development without the adoption of overarching strategic planning in the conduct of the activities of the state.

As can be gleaned from the result of question (4.6) on the view that there is the need for (stability in the administrative apparatus of government.) the respondent's mean score was (1.56). This result can be interpreted to mean that majority of respondents expressed strong agreement with the position that stability of the administrative structure of government is an important issue because the stability of the government, its structure, agencies and policies impacted on the stability of the state.

For question (4.7) on the view that there is the need to (develop a mechanism to open the way for the contribution of the civil society and individuals to participate in the formulation and implementation of development plans and programmes.) the respondents' mean score was (1.67). This result shows that majority of the answers are indicated the respondent's demonstrated strong agreement with the position that the inclusion of the civil society and private individuals in the policy making and implementation processes was important for the task of achieving comprehensive national development.

Furthermore, as reported in the result of the mean score for question (4.8) on the view that (the openness to the experiences of others in the aspect of comprehensive development and it utilization.) for respondents' was (1.42). This result indicated that most of the respondents strongly agree that there is a need for openness to the experiences of others countries as such openness when constructed within the context of the particular culture of the receiving society can help the state to achieve high rate of development.

The result of question (4.9) on the need for the (adoption of the principle of freedom of information in manner that it would aid the free provision and dissemination of information related to development programme

to the citizens.) has mean score of (1.51). This result indicated that majority of the respondents strongly agree, about the demand for and the need for the provision of freedom of information as modality for enhancing the success of development programme. They also agree that the provision of freedom of information enhance transparency in government business and thus contributes to the success of government policies and programmes.

Question (4.10) on the need for the (adoption of e-government as a modality for providing public services to the citizens.) has respondents result with mean score of (1.61). This indicated that the adoption of e-government is the perfect way to achieve high level of development. The results which mentioned above were confirmed by Al Haddad A. (2009) and (Ghanem G. (2005). Thus, these results give the answer to the question: What are the requirements for the combating of administrative corruption in governmental institutions in Libya?

Table 5 Descriptive Statistics of Respondent’s Perceptions on the Requirements for Combating Administrative Corruption in Libyan

	N = 230	Minimum = 1	Maximum = 5		
The question				Mean	Mean of all Qs
4.1 To combat the phenomenon of administrative corruption in government institutions require the state to establish an independent body entrusted with the task of combating administrative corruption.				1.55	
4.2 Review the labor and anti-corruption laws.				1.65	
4.3 Adoption of the principle of competence and expertise in performance as a guide when selecting administrative leaders in the State.				1.39	
4.4 Adoption of the principle of transparency in the conduct of the functions of government and its institutions.				1.48	1.53
4.5 Adoption of the principle of overall strategic planning in the programs of the government.				1.48	
4.6 Stability in the administrative apparatus of government.				1.56	
4.7 Develop a mechanism to participate of the civil society and individuals in the formulation and implementation of development plans and programmes.				1.67	
4.8; The openness to the experiences of others in the aspect of comprehensive development and it utilization.				1.42	
4.9; Adoption of the principle of freedom of information in manner that it would aid the free provision and dissemination of information related to development programme to the citizens.				1.51	
4.10; Adoption of e-government as a modality for providing public services to the citizens.				1.61	

Note: Scale for answering; 1=strongly agree; 5=strongly disagree.

12. The Conclusion and the Recommendations

12.1 The Conclusion

Through the answers which obtained to questions of the study, could be answer the main question is: What is the extent of the spreading of the corruption in Libya and what the ability to control corruption, promote transparency for access to good governance of the state? It was found that through the first question that corruption is widespread in Libya and by the second question shows that the spread of corruption, this was due to the lack of transparency, lack of law enforcement, and the weakness of political will of the state in the fight against corruption. This resulted in, as explained by the third question, the spread of different types of corruption (bribery, cronyism and favoritism), and as explained by the fourth question the requirements that can assist in control of corruption.

12.2 The Recommendations

To address the crisis of corruption the following suggestion are proposed:

(1) The establishment of an independent body or bureau within the civil service task with the aim of combating corruption in all the administrative divisions of the state. The body will work in detecting and investigating corruption cases and refers them to the judiciary for the dispensing of justice.

(2) There is the need to pass legislation that would oblige the government and its agencies to adhere to the principles of transparency and accountability in the performance of their functions. This should encompass the adherence to transparency in the making of state budget, methods of disbursement, approval of contracts, and other contractual agreements.

(3) There is the need for the government to adopt clear strategies for action (short, medium, and long term). The action plans should have yardstick for ensuring accountability and for evaluating government performance.

(4) There is the need for political will that will encourage the fight against corruption.

(5) There is the need to provide appropriate mechanisms for the press and civil society to play their role in the detection of corruption within the institutions of the State and follow-up to ensure the accountability of those responsible before judicial authorities.

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Credit Risk Management: New Waves to Indian Banking Industry

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Abstract: Risk is an inherent part of a Bank's business. The effective management of credit risk is a critical component of comprehensive risk management and essential for long-term success of a banking institution. In view of this, aligning credit risk management to bank's organizational structure and business strategy has become integral in banking business. This research will focus on different aspects of the banking industry with primary focus being on credit risk management with a two-fold approach, i.e., firstly focusing on the theoretical aspects of risk management approach and analyzing the overall implementation of this approach in Indian banking sector. Foremost amongst them is the wind of economic liberalization that is blowing across the globe. India is no exception to this swing towards market-driven economy. Globalization and significant competition between foreign and domestic banks, survival and optimizing returns are very crucial for banks and financial institutions. However, selecting the efficient customer and providing innovative and value added financial products and services are another paramount factors. In order to ensure transparency of risks taken, it is the responsibility of banks to accurately, completely and in a timely fashion, report the comprehensive set of credit risk data into the independent risk system.

Key words: credit risk; credit policies; future risk

JEL codes: G21, G24, G32

1. Introduction

The Indian Financial System is tasting success of a decade of financial sector reforms. The economy is surging and has gathered the critical mass to convert it into a force to reckon with. The regulatory framework in India has sparked growth and key structural reforms have improved the asset quality and profitability of banks. The fact of the matter is this: the global market is fast integrating into a single stage for all markets though the spread of internet banking, a global banking system a highly likely possibility. In fact, internet banking is at the forefront of the global banking system, widening its expanse and possibly making it the ultimate step in the marketing structure for financial services not only in India (which is the focus of this research) but also in the world. There has been more and more global focus on and around how global banks is going to expand even more due to globalization. The contribution of acts like the Financial Services Agreement (FSA) first drafted in 1997 has led to numerous financial sectors growing in their respective industries on a quid pro quo foundation. India and its financial sector is one that has taken this opportunity and used it to the fullest in recent years.

The paper will focus on different aspects of the banking industry with primary focus being on credit risk management with a two-fold approach, i.e., firstly focusing on the theoretical aspects of Risk management approach and the analyzing the overall implementation of this approach in Indian banking sector. Hence, we will

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analyze the impact of the theoretical framework of the risk management procedures on the internal organizations of the banks as well as highlight the impacts that the growth has had on the economy overall. The paper will also use graphs and figures to illustrate growth of the Indian Banking Industry and support the theory presented.

2. Credit Risk Management

Risk is an integral part of any and all businesses in the private or the public sector. Risk can surface in any form across any and all departments like customer services, marketing, human resources or recruitment, pricing, strategy, security, reputation, legitimacy, technology and/or any other form of regulation. However, for banks and financial institutions, credit risk is the most important factor to be managed. When explaining what credit risk really is, it is important to note that credit risk is based completely on the breaking of the agreed terms of a contract by a borrower or counterparty. This could include not only going against the agreed terms but also the inability to fulfill whatever necessary tasks they were required to do according to the terms. Credit risk, therefore, arises from the banks' dealings with or lending to a corporate, individual, another bank, financial institution or a country.

Before talk about the credit risk in Indian Banks, we must analyze the following figures (for the years 2008 and 2007 respectively) below to truly understand the major players in the Indian Banking Industry.

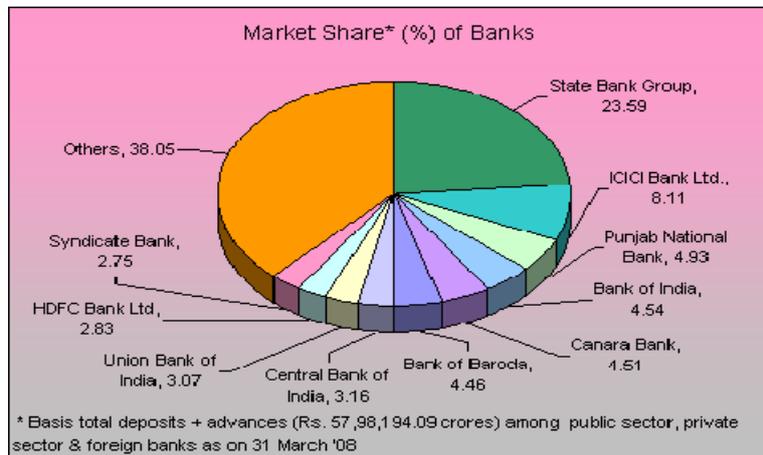


Figure 1 Major Players in Indian Banking Industry–Market Share 2008

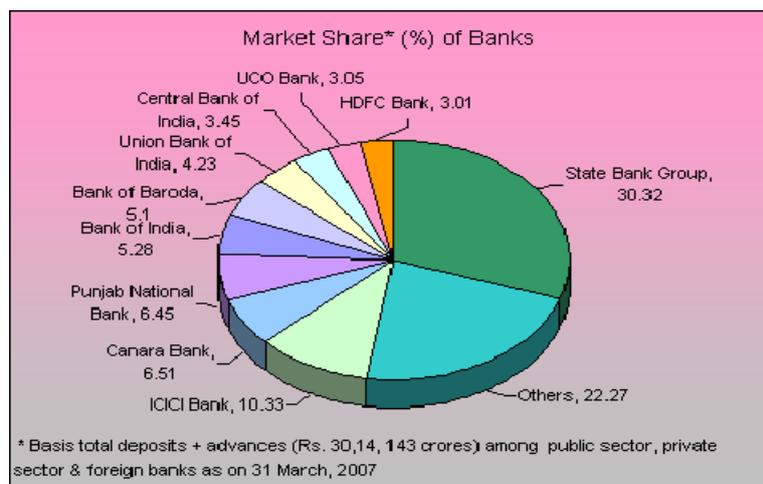


Figure 2 Major Players in Indian Banking Industry–Market Share 2007

Before analyzing the risk management techniques, it is important to understand the overall structure and framework of the Indian Banking Industry. The table (See Table 1) below exhibits the types and formats of banks that exist in the Indian Financial Sector ranging from commercial to rural banks and focusing on the numeric frequencies (i.e., increase or decrease) over a period of six financial years.

Table 1 Structure of Indian Banking

Structure of Indian Banking	2002	2003	2004	2005	2006	2007
No. of Commercial Banks	297	292	290	289	222	183
(a) Schedule Commercial Banks	293	288	286	285	218	179
Public Sector	27	27	27	28	28	28
Private Sector	30	29	30	29	28	25
Foreign Sector	40	36	33	31	29	29
(b) Non-Scheduled Commercial Banks	4	4	5	4	4	4
No. of Regional Rural Banks	196	196	196	196	133	96
No. of Bank Offices	68195	68500	69170	70373	71177	73836
Of which Rural	32503	32283	32227	30790	30436	30560
Semi Urban	14962	15135	15288	15325	15811	16434
Urban	11328	11566	11806	12419	13034	13840
Metropolitan	9402	9516	9750	11839	12404	12952
Population Per Office (thousands)	15	16	16	16	16	16

Source: Reserve Bank of India.

It is interesting to note here how some of the banks lost their market share (for instance, the Canara Bank, the Punjab National Bank and the State Bank Group) within a space of twelve months only. Fast forwarding to a couple of years, and analyzing the figure for the HDFC bank (below) in the years in 2009. The overall year proved to be extremely trying for the bank and its investments with nearly 80% of the total earned in gains, the consolidations of the stocks were more visible in the last two-two n a half months. Perhaps the stage where risk management techniques came into play for the HDFC was the dip right at the start of November followed by the higher percentage earned at the start of December. Of course, increasing credit investment and stocks is the aim of every bank so what they should be wary of when faced with a similar circumstance is to make sure that they avoid such irregularities through effective risk management. Maintaining steadier middle ground is really important here.

The overall ratios and rates that the HDFC Bank is recording (see Figure 3 below) being based out of the New York City are very positive, especially in the current financial quarters. The banking sector shows a total of 32% increase in the total profits that HDFC experienced as part of the second leading private sector lender in the state. The bank experienced dynamic loan increases and growths and had the perfect risk management procedure to maintain the level of loan growth in the coming financial quarters. This is where the banks based in India can learn from the HDFC bank based in New York as the primary way that the banks in India can increase their overall loan traffic is through focusing their marketing and structural strategies in and around the retail loan domains and advances.



Figure 3 HDFC Bank Risk Management Procedure in Loan Growth

India’s financial structure is strongly supported by various other small sector organizations that improve the flow of credit investments and loans every year. One such organization is known as “Bandhan” and is based out of Calcutta. Bandhan has quickly grown into one of the most extensive and profitable microfinance organizations in the world. In fact, Bandhan has beaten the norms for most microfinance organization because of its speedy growth while others in the same category seem to grow at a much slower rate. When looking for statistical proof, Bandhan’s growth is very obvious with clients numbering to more than 750,000 clients, more than 400 franchises, nearly \$120M earned in payments, employing more than 2000 personnel; not only that, they have an average growth of more than 30,000 clients in a month. When you do the math here, in half a decade’s time, Bandhan has gone from being a completely new company to one that services over 3,750,000 people! Table 2 below shows their growth in the aspects where credit investments and loans play the biggest part.

Table 2 Growth Rates of Credit Investment and Loans

Indicators		First Loan	Second Loan	Third Loan
Access to savings facility	Increased	22.50%	45%	90%
	Remained Same	77.50%	55%	10%
	Decreased	-	-	-
Dependency of money lenders	Increased	-	-	-
	Remained Same	78%	45%	-
	Decreased	22%	55%	100%
Capacity to cope with economic crisis	Increased	22%	55%	90%
	Remained Same	78%	45%	10%
	Decreased	-	-	-
Income	Increased	22%	55%	90%
	Remained Same	78%	45%	10%
	Decreased	-	-	-
Live stock	Increased	-	12%	40%
	Remained Same	100%	88%	60%
	Decreased	-	-	-
Land ownership	Increased	-	-	30%
	Remained Same	100%	100%	70%
	Decreased	-	-	-

In an important relative study, the researchers examined the connection between the overall standard of performance and the standard of strategy that is implemented in the Indian commercial banks in the current era. All of the results attained in the study were formulated using the financial records and releases of a selected sample of Indian Banks. The study explained how the ability of the bank to use its capital and resources in risk management helps to not only create a higher percentage of loans but also improves the efficiency. This particular aspect is absolutely critical when dealing with risk management strategies because the higher the efficiency of the workforce, the easier would be implementation of risk management strategies. In the study, the researchers concluded that it was the public sector banks that reported higher efficiency as opposed to the private or foreign Indian Banks which is why their style of business was consistently able to outperform them in the flexible and evolving financial sector of the country. Below is a table that statistically proves their findings:

This study we aimed to understand and statistically highlight the profits made by the banks that directly resulted from their loans investments and risk management strategies. Hence, we decided to take different bank groups and companies (previously highlighted in the pie-charts) and compared the net growth of these selected bank groups in the financial years of 2006 and 2007. Note that these net profits were calculated with the number of increase or decrease in the overall loans investments in these bank groups. (See Figure 4).

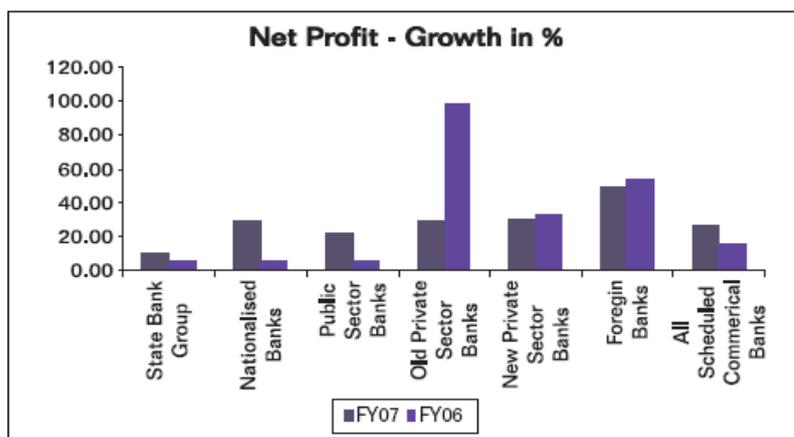


Figure 4 Net Profit Growth of Selected Banks

Source: Reserve bank of India.

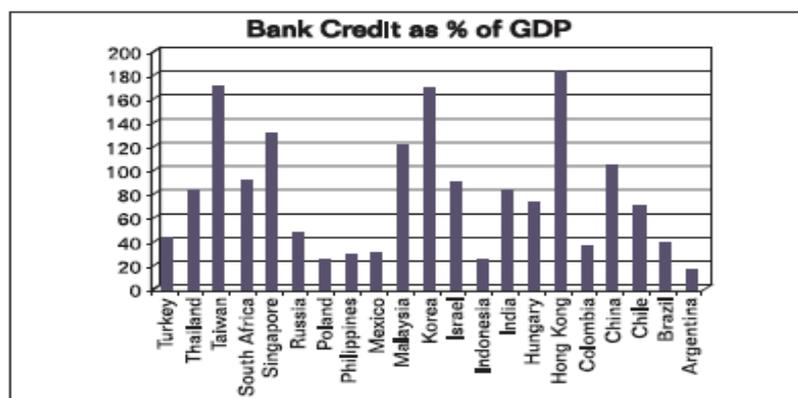


Figure 5 Bank Credit as Percentage of GDP Compared to Other Countries

Source: IMF, World Bank, IBES Estimates, Credit Suisse Research.

An important thing to note here is that while bank credit is increasing in India, the overall impact that it has on the GDP and the economy is still not at the extent that some of the other countries experience. India's current bank credit holds to 80% of the GDP of the country, in fact the entire Asian block with Thailand and China does not record higher than 100% of the GDP. When comparing that to Hong Kong (with 180% of the GDP and rising), it becomes obvious that the bank credit management needs to be revised for superior performance (See Figure 5).

3. Risk Management for Indian Banks

Risk management is relatively new and emerging practice as far as Indian banks are concerned and has been proved that it's a mirror of efficient corporate governance of a financial institution. Globalization and significant competition between foreign and domestic banks, survival and optimizing returns are very crucial for banks and financial institutions. However, selecting the efficient customer and providing innovative and value added financial products and services are another paramount factors. In a volatile and dynamic market place for achieving sustainable business growth and shareholder's value, it is essential to develop a link between risks and rewards of all products and services of the bank. Hence, the banks should have efficient risk management framework to mitigate all internal and external risks.

In order to better manage bank credit risk, it is important to understand the various ways and situations in which credit risk can emerge. Some of the more common aspects or situations that occur in the form of credit risk include the following:

- If the transaction was designed in a direct lending format, then there is a higher chance that the funds originally transferred would not be returned or repaid; this could lead to losses of credit investments.
- If and when the liabilities of the clients or customers are crystallized, especially in the instances of the liabilities in question being guarantees or letters of credit, the customer or client will not be willing to come forward and pay back the funds received; this could lead to losses of credit investments.
- When talking about the financial freezes in the treasury products, there is an expectation of a cease of repayments or the parties involved not being willing to pay back the funds based on the original terms of agreement or contracts; this could lead to losses of credit investments.

The fact of the matter is that with the banks improving and escalating their transactions and markets to a global scale means that they have to actually implement a far diverse internal structure. This in turn means that they will need to employ far more efficient and intricate strategies to counter the various formats of unprecedented credit risks that they might face. Aside from the credit risks involved in global banking, there are quite a few other hurdles and risks that banks will have to prepare for, for instance the operational risks that come with being a commercial-based operative; the business risks faced by the commercial borrowers, the various topographical/political/cultural/religious/legislative risks associated with expanding into an unknown or foreign territory; even the reputation risks involved can turn out to be make or break for bank groups or companies involved in global banking. However, all of these can be preemptively countered by conducting thorough market researches before establishing global business settlements; credit risk management, however, is not that easy to prepare.

Credit risk management enables banks to identify, assess, manage proactively, and optimize their credit risk at an individual level or at an entity level or at the level of a country. Given the fast changing, dynamic world scenario experiencing the pressures of globalization, liberalization, consolidation and disintermediation, it is important that banks have a robust credit risk management policies and procedures which is sensitive and

responsive to these changes.

India's banking structure has undergone its reddy years in the past decades, and when talking about shareholder returns on credits and loans for them, it is important that the investments in these reddy years and understood with regards to the overall inflation rates of the country, its interest rates on credits and loans as well as the global exchange rate of the India Rupee.

4. Using Credit Risk Management as Building Blocks of Business

Indian banks need to integrate their corporate objectives with their credit risk management structures in order to have strong and sustaining building blocks of business. In order to incorporate the corporate goals with risk management the following aspects have to be paid attention to:

(1) Strategy and Policy

Strategy and policy refers to the way in which the business is conducted on a regular basis. It will also include business aspects like the overall appetite and demand for credit and loans in the clientele as well as the overall structure and guidance needed for credit investments to enable the clients make an informed, analytical and clear decision on the format of credit risk and investment they want to make.

It is essential that each bank develops its own credit risk strategy or enunciates a plan that defines the objectives for the credit-granting function. This strategy should spell out clearly the organization's credit appetite and the acceptable level of risk-reward trade-off at both the macro and the micro levels. Considering the above statement, it is necessary for the bank to develop their strategy around their own willingness to step forth and provide loan and credit investment opportunities designed around the economic, political, market and infrastructure framework of the country they are established in. the currency of the country and the maturity of the market also play a huge part in the development of the bank's strategy. Hence, this would include the through assessment of many volatile aspects like:

- Segmentation and recognition of the target audience based on consumer behaviors and the competitive business sectors.
- The preference of the specialization of the industry and competition in it.
- The overall financial investments needed for the possibility of sustaining credit investments and reducing chances of debts or non-repayment.

The overall policy approach of banks stepping in the global banking industry should be to completely realize the extent of organizational tasks required for not only incorporating risk management and measurement strategies but also include all the functional techniques, recording techniques, legislation and guidelines required internally and externally in relation to risk management. The overall policies require for loan investments must also expand outside the box of merely understanding and implementing sustainable credit activities. They should allow a constant source of networking to other banks as well as ensure that loan losses don't surface due to poor loan structuring and perfunctory risk assessments. An organization's risk appetite depends on the level of capital and the quality of loan book and the magnitude of other risks embedded in the balance sheet. Based on its capital structure, a bank will be able to set its target returns to its shareholders and this will determine the level of capital available to the various business lines.

(2) Organization

The organization of credit risk management deals with lucid delegation of tasks and responsibilities so that

there is a clear chain of command and protocol to follow for the employees and the suppliers of the banks.

(3) Operations and Functional Structures

There is a need for a Chief Operating Officer (COO) who can handle the functional structures, both tangible and intangible. The job requirements for the COO will also include managing a senior executive and middle executive branch on the bank as well as recruit and train individuals for the necessary development of mechanisms and techniques needed in the smooth operations of the business.

Hence, all Indian banks should be structured to have:

- Customized strategy and policies that manage the high risk departments of the bank from capital resources to huge financial transactions;
- Sound implementation systems for all strategies;
- Rating and monitoring structures for credit risks on all clients based on prior behavioral patterns;
- A structure to adjust prices for credit and loans in accordance to market changes;
- Using the Boards' approval processes for credit sanctions;
- A conventional structure to analyze and stipulate the compliance of the non-performing advances;
- Regular assessments and re-assessments of credit risks in the changing market.

5. Credit Policies and Procedures

The most recent studies have shown that for Indian banks the following credit policies and procedures must be inclusive of the following aspects in a majority of their credit and loan transactions.

(1) Banks should have written credit policies that define target markets, risk acceptance criteria, credit approval authority, credit origination and maintenance procedures and guidelines for portfolio management and remedial management.

(2) Banks should establish proactive credit risk management practices like annual/half yearly industry studies and individual obligor reviews, periodic credit calls that are documented, periodic plant visits, and at least quarterly management reviews of troubled exposures/weak credits.

(3) Business managers in banks will be accountable for managing risk and in conjunction with credit risk management framework for establishing and maintaining appropriate risk limits and risk management procedures for their businesses.

(4) Banks should have a system of checks and balances in place around the extension of credit which are:

(5) An independent credit risk management functions

(6) Multiple credit approvers

(7) An independent audit and risk review function

(8) The Credit Approving Authority to extend or approve credit will be granted to individual credit officers based upon a consistent set of standards of experience, judgment and ability.

(9) The level of authority required to approve credit will increase as amounts and transaction risks increase and as risk ratings worsen.

(10) Every obligor and facility must be assigned a risk rating.

(11) Banks should ensure that there are consistent standards for the origination, documentation and maintenance for extensions of credit.

(12) Banks should have a consistent approach toward early problem recognition, the classification of

problem exposures, and remedial action.

(13) Banks should maintain a diversified portfolio of risk assets in line with the capital desired to support such a portfolio.

(14) Credit risk limits include, but are not limited to, obligor limits and concentration limits by industry or geography.

(15) In order to ensure transparency of risks taken, it is the responsibility of banks to accurately, completely and in a timely fashion, report the comprehensive set of credit risk data into the independent risk system.

6. Organizational Structure

A common feature of most successful banks is to establish an independent group responsible for credit risk management. The adaptation of having a separate team to handle risk management is something that many banks find easier and more suitable to use because it allows them to have a specialized team looking into the aspect with a single-minded goal and focus in mind. Furthermore, this ensures the optimum use of appropriate skills in the domain of credit risk management. Some banks are also using the risk management teams as departments that tackle the functional and operational aspects of credit management as well as the administration of problem accounts or clients for the banks. This approach is justified by saying that all problem accounts also pose as credit and investment risks for the banks.

When analyzing the tasks and obligations of the specialized teams hired for credit risk management, the following tasks come to mind:

(1) Designing the framework behind all of the strategies and policies of the credit procedures, guidelines and administration

(2) Work on analysis of all possible and unprecedented credit risks that could be a results of:

- Use of credit cards.
- Principles of corporate banking.
- Principles of personal banking.
- The treasury loans.
- Principles of trade finance.
- The procedure of payment and settlement.
- The overall running of the securities structures, amongst others.

(3) Designing the framework behind all of the strategies and policies of the credit procedures, guidelines and administration.

(4) The assessment of the patterns of the loans and credits investments.

(5) The possible internal areas in the bank's structure with high risk concentration.

(6) Guidance for the asset and liability management in case the credits are invested in private or individual businesses.

(7) Research and develop useful industry and sector findings or investigations.

(8) Review and contribute to the operational processes being used in relation to credit risk management.

7. The Future-Risk Management

When talking about the future most likely to emerge with effective risk management strategies and policies

within India, the overall future, based on the liberalization and changing market regulations, there is a higher probability of maintaining high integration of the local financial sectors and the international financial sectors. This in turn would add a lot more intricacy in the structures and procedures of the banks, a necessity of the global market and banking structure.

As the risks are correlated, exposure to one risk may lead to another risk, therefore management of risks in a proactive, efficient & integrated manner will be the strength of the successful banks ... The future will see a structural change in the banking sector marked by consolidation and a shake-out within the sector. The smaller banks would not have sufficient resources to withstand the intense competition of the sector. Banks would evolve to be a complete and pure financial services provider, catering to all the financial needs of the economy. Flow of capital will increase and setting up of bases in foreign countries will become commonplace. The most beneficial outcomes in the long run will include:

- Boost in the economic strength of the financial sector
- Right movement and storage of savings
- Funds for country's development will be more readily and consistently available
- The banks will be equipped to calculate their annual Probability of Default (PD), Exposure at Default (EAD) and Loss Given Defaults LGDs.

The figure below shows how the possible inclination of credit risk management procedures in banks can help the economy of India as well as contribute to the overall market growth and efficiency of performance:

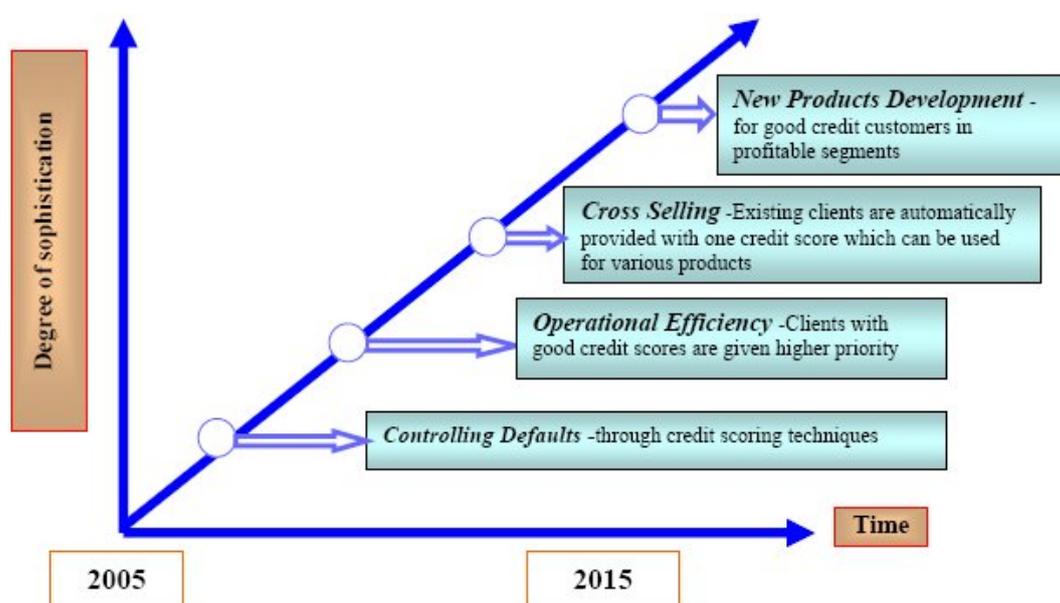


Figure 6 Strategic Continuum of Risk Scoring Models

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Winter Peak Electricity Load Forecasting in South Africa Using Extreme Value Theory with a Bayesian Flavour

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Abstract: An application of a Generalized Pareto-type (GP-type) in modelling daily peak electricity demand is presented using data from South Africa for the period 2000 to 2009. The optimum threshold is determined using a generalized Pareto quantile plot. The GP-type distribution has one parameter to estimate and not two as is the case with the Generalized Pareto distribution (GPD). A comparative analysis is done by fitting a GPD. Empirical results show that the Weibull class of distributions can be used to model the daily peak electricity demand data. Although the GP-type distribution gives a good fit the results from fitting a GPD are however better. The GP-type distribution is attractive since it is a simpler distribution to work with. Modelling the tail of a distribution in load forecasting helps to understand how extremes may affect forecasts. This helps decision makers in the electricity sector in utility planning and reduces operational costs.

Key words: generalized Pareto-type; Gibbs sampling, generalized Pareto distribution; probability of exceedance

JEL codes: C11, C13, C22, C53

1. Introduction

Modelling of extreme peak loads is important to load forecasters who must provide accurate predictions to both decision makers and system operators in the electricity sector. The forecasts are important for timely scheduling of electricity particularly during periods of peak demand and load flow analysis. Modelling of exceedances above a sufficiently high threshold has been studied for over three decades. Research has shown that the distribution function of the excesses above a high threshold converges to a generalized Pareto distribution (GPD) (Balkema and de Haan, 1974; Pickands, 1975). Recent work includes that of Verster and De Waal (2011) who showed that the tail of a Generalized Burr-Gamma (GBG) distribution can be approximated by a Generalized Pareto-type (GP-type) distribution. The use of the GP-type distribution in modelling the probabilities of unusually high electricity demand is discussed in this paper. A comparative analysis with the GPD is then carried out. Extreme peak electricity demand is usually caused by extreme events. These events could be extreme weather

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and/or non-weather factors. Work in this area includes that of Hor *et al.* (2008) who assessed load forecast uncertainty using extreme value theory. Hor *et al.* (2008) concluded that by using a generalized extreme value (GEV) distribution, the number of return observations exceeding given extreme observations is closely in line with what was predicted.

The rest of the paper is organized as follows. In Section 2 we describe the data. The GP-type distribution is discussed in Section 3. The Bayesian approach for estimating the unknown parameter of the GP-type distribution is presented in Section 4. Empirical results are presented and discussed in Section 5. Section 6 concludes.

2. Demand Data

The data used is daily peak demand (DPD) obtained from Eskom, South Africa’s power utility company. Aggregated DPD data for the residential, commercial and industrial sectors of the economy is used for the period 2000 to 2009 giving a total of 3636 observations. Electricity demand is generally subject to seasonal changes and an upward positive linear trend. In this paper winter in South Africa is defined as the 93 day period from 15 May to 15 August each year. Winter peak demand is the highest level of hourly demand observed during a particular winter. DPD is the maximum hourly demand in a 24-hour period. Daily peak demand data from January 2000 to December 2009 is given in Figure 1.

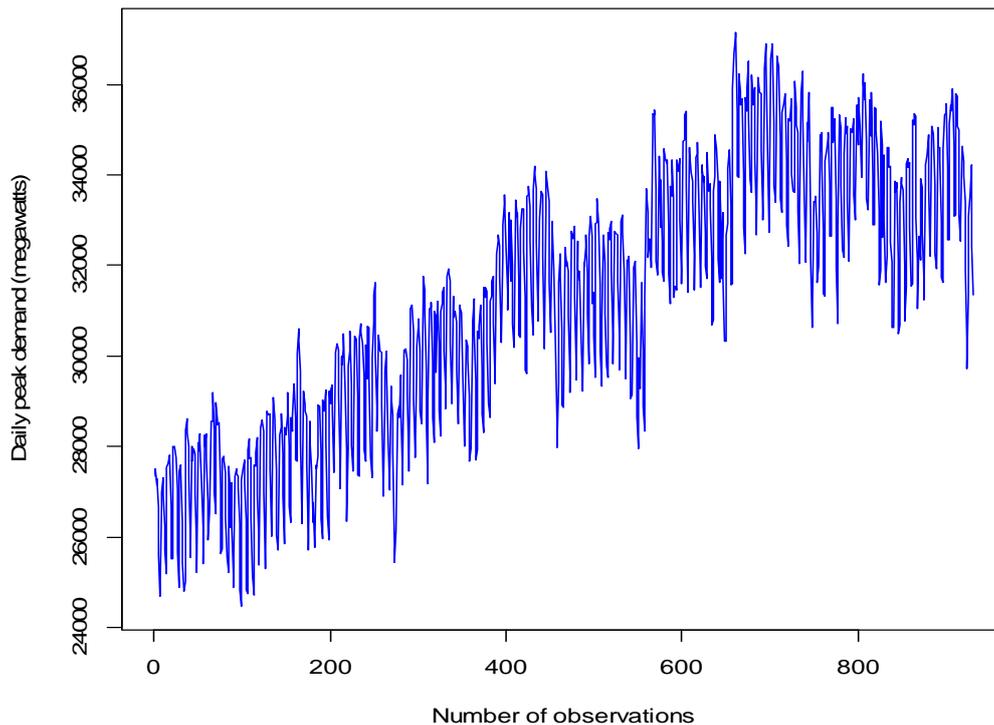


Figure 1 Daily Peak Demand Data from 2000 to 2009. Only Data from 15 May to 15 August of Each Year Are Given

A typical winter daily peak load profile is given in Figure 2.

Electricity demand in South Africa is highly sensitive to temperature changes in winter and less sensitive in summer (Sigauke and Chikobvu, 2010). The winter period therefore experiences high demand of electricity. This calls for accurate predictions of peak winter electricity demand as underestimation would result in load

interruptions and blackouts. The monthly electricity demand profile in Figure 3 shows that the highest annual peak is in July which is a winter month in the Southern Hemisphere.

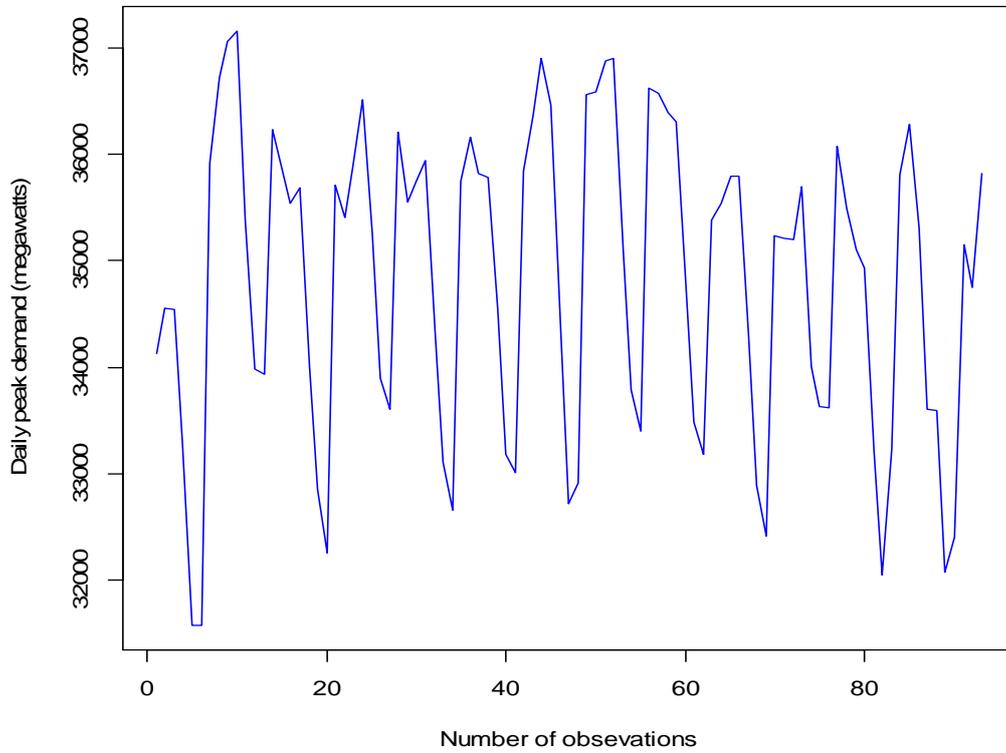


Figure 2 Daily Peak Demand Data from 15 May 2007 to 15 August 2007.

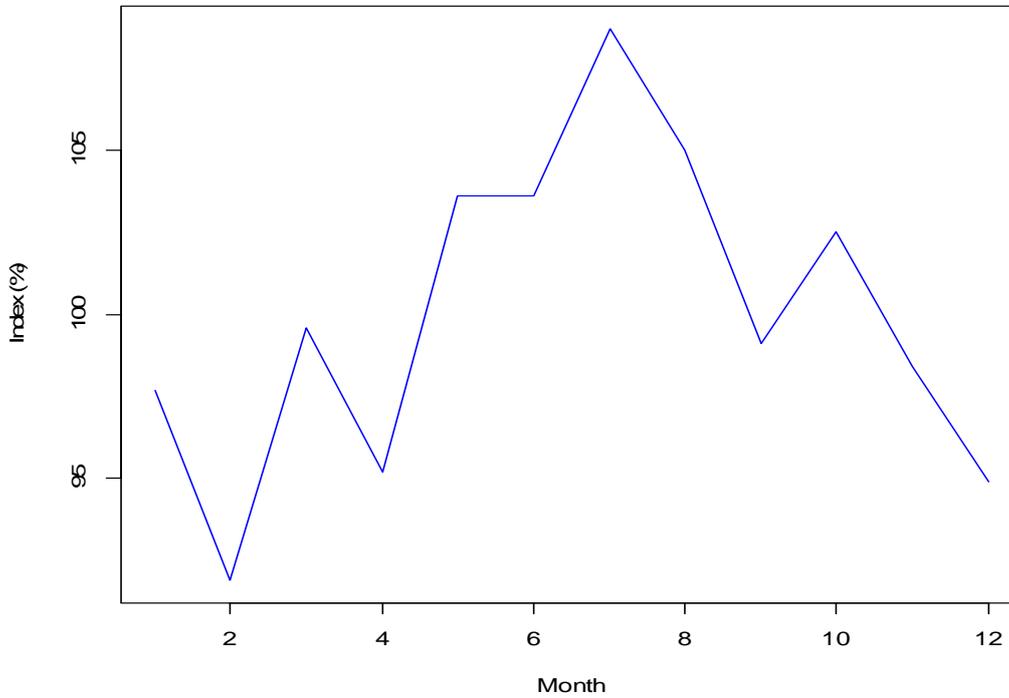


Figure 3 Monthly Demand Profile.

3. Generalized Pareto-type Distribution

Verster and De Waal (2011) showed that above a reasonably high threshold, τ , the tail of a GBG can be approximated by a GP-type distribution. The distribution and survival functions of the GP-type distribution are given in equations (1) and (2) respectively.

$$W_{\eta}(x) = 1 - \left(1 + \frac{\eta(x-\tau)}{1+\eta\tau}\right)^{-\frac{1}{\eta}}, x > \tau, \eta > 0 \quad (1)$$

$$P(X > x|X > \tau) = \left(1 + \frac{\eta(x-\tau)}{1+\eta\tau}\right)^{-\frac{1}{\eta}}, x > \tau, \eta > 0 \quad (2)$$

Where X represents daily peak electricity demand and $X-\tau$ is the excess above a high threshold τ . The parameter η is known as the extreme value index (EVI).

4. Bayes Estimation of the Approximated GP-type Distribution

Our prior distribution specification given in equation (3) is the maximal data information (MDI) prior (Zellner, 1977).

$$p(\eta) = \frac{e^{-\eta}}{1+\eta\tau} \quad (3)$$

The likelihood function $p(x|\eta, \tau)$ is given as

$$p(x|\eta, \tau) = \prod_{i=1}^n \frac{1}{1+\eta\tau} \left[1 + \frac{\eta(x_i-\tau)}{1+\eta\tau}\right]^{-\frac{1}{\eta}} \quad (4)$$

Combining the prior distribution in equation (3) with the likelihood function in equation (4) we get the following posterior distribution:

$$p(\eta|x, \tau) \propto p(\eta)p(x|\eta, \tau) = \frac{e^{-\eta}}{1+\eta\tau} \prod_{i=1}^n \frac{1}{1+\eta\tau} \left[1 + \frac{\eta(x_i-\tau)}{1+\eta\tau}\right]^{-\frac{1}{\eta}} \quad (5)$$

Where n is the number of exceedances above the threshold. A detailed discussion is given in Verster and De Waal (2011). The posterior predictive survival function for predicting the future tail probability, X_0 , is given by

$$P(X_0 > x_0|x, \tau) \propto \int p(\eta|x, \tau) \left(1 + \frac{\eta(x_0-\tau)}{1+\eta\tau}\right)^{-\frac{1}{\eta}} d\eta = E_{\eta|x} \left(1 + \frac{\eta(x_0-\tau)}{1+\eta\tau}\right)^{-\frac{1}{\eta}}, -\infty < \eta < \infty \quad (6)$$

Expression (6) cannot be computed analytically, but can be approximated easily by simulation.

5. Empirical Results

5.1 Threshold Estimation

The data is initially transformed by taking natural logarithms. An initial threshold is set at zero after detrending and all those observations with negative values are excluded. The optimum threshold of these observations is then determined using a generalized Pareto quantile plot shown in Figure 4. The threshold is chosen at the observation value where the plot begins to follow a horizontal line, which is $\tau = \exp(8) = 2981$.

5.2 Predicting Future Observations Using the GP-type Distribution

The observations larger than the threshold τ are then considered to be GP-type distributed. The parameter η is estimated through a Bayesian approach using the posterior distribution given in equation (5). The mode of the posterior distribution is taken as the estimate of η which is found to be 0.077. The Quantile-Quantile (QQ) plot for

the observations above the threshold is constructed in Figure 5. The QQ-plot is a method for judging the goodness of fit of the proposed model to the data, see for example (Beirlant *et al.*, 2004). If the QQ-plot follows a 45° line it indicates a good fit. Figure 5 therefore indicates a fairly good fit of the GP-type distribution to the data.

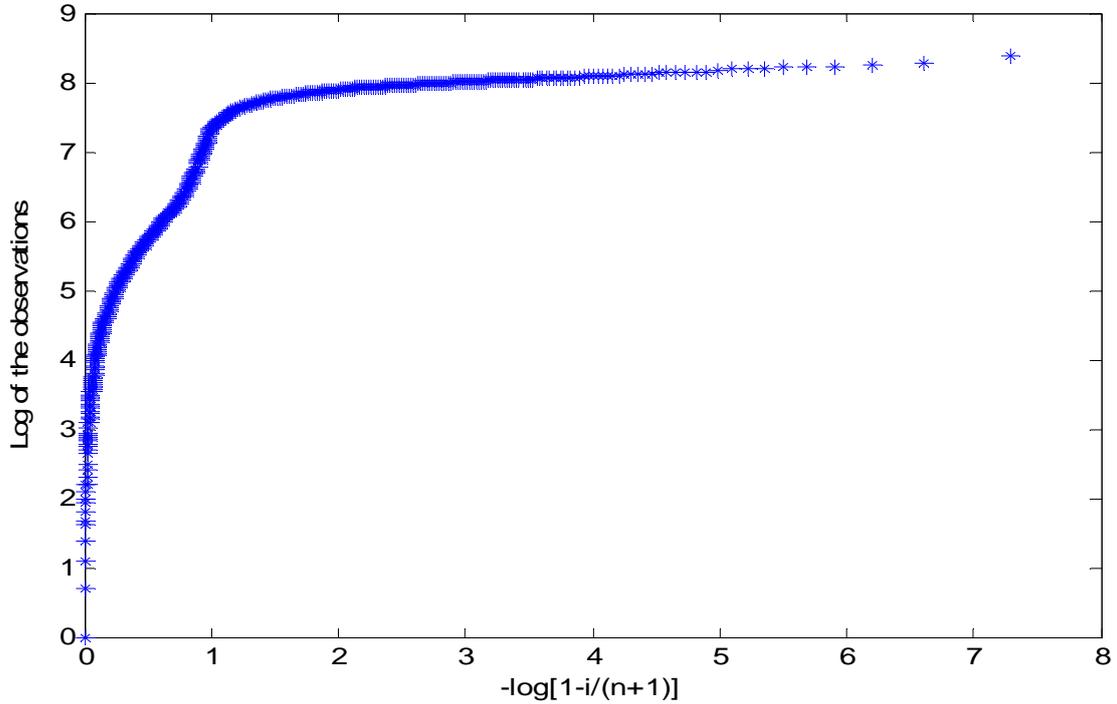


Figure 4 Generalized Pareto Quantile Plot on the Observations Greater Than Zero

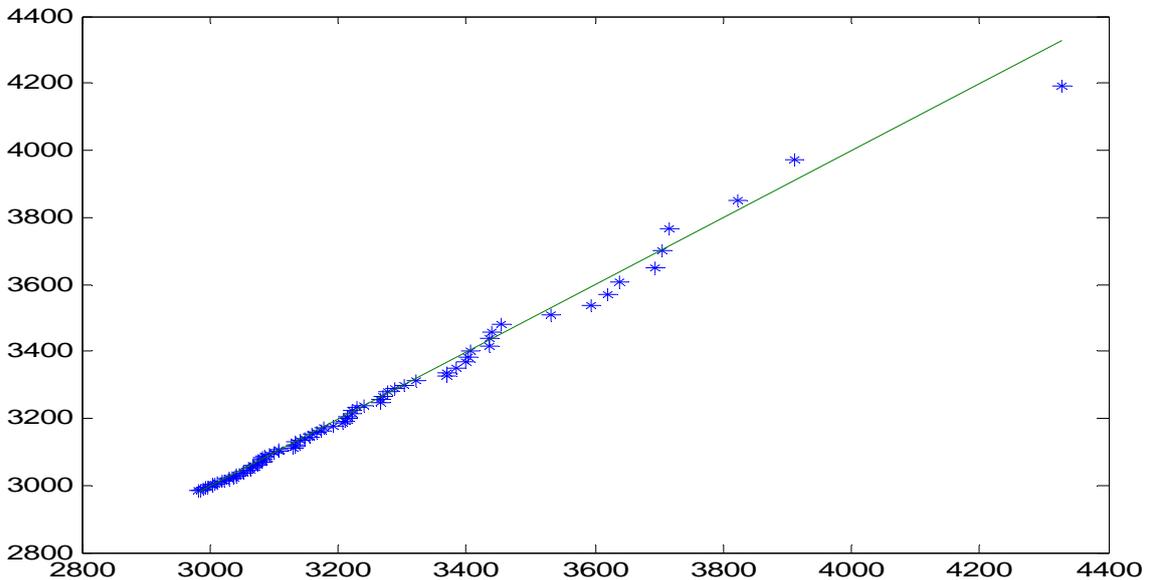


Figure 5 QQ Plot of DPD above $\tau = 2981$. The Horizontal Axis Represents the Standard Theoretical Quantiles While the Empirical Quantiles Are Plotted on the Vertical Axis

Figure 6 shows the empirical cumulative distribution function (*cdf*) and the *cdf* of the GP-type distribution. From Figure 6 it seems as if the GP-type is an appropriate model to consider modelling the observations above the threshold.

The posterior predictive survival distribution of the approximated GP-type distribution given in equation (6) is now used to predict posterior tail probabilities. For example we can predict the probability exceeding a large value such as 4500, which is

$$P(X_0 > 4500|x_1, \dots, x_n) = \frac{1}{m} \sum_{j=1}^m \left(1 + \frac{\eta_j(x_0-t)}{1+\eta_j t} \right) = 0.0052 \quad (7)$$

Where m number of η values are simulated from the posterior and substituted into equation (7). Some of the predicted tail probabilities for various future daily peak electricity demands where η is simulated from its posterior are given in Table 1. The density function of the posterior predictive tail probabilities is given in Figure 7.

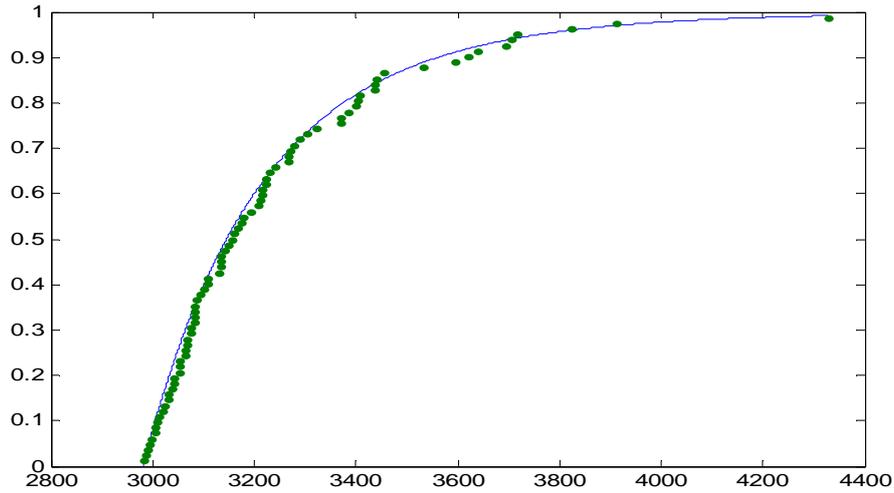


Figure 6 Graphical Plot of the Empirical *cdf* (Dotted Curve) and *cdf* of the GP-type (Solid Curve) on the Exceedances

Table 1 Posterior Predictive Tail Probabilities

x_{n+1}	$P(X > x_{n+1} X > \tau)$ GP-type
3000	0.9224
3500	0.1310
4000	0.0237
4500	0.0052

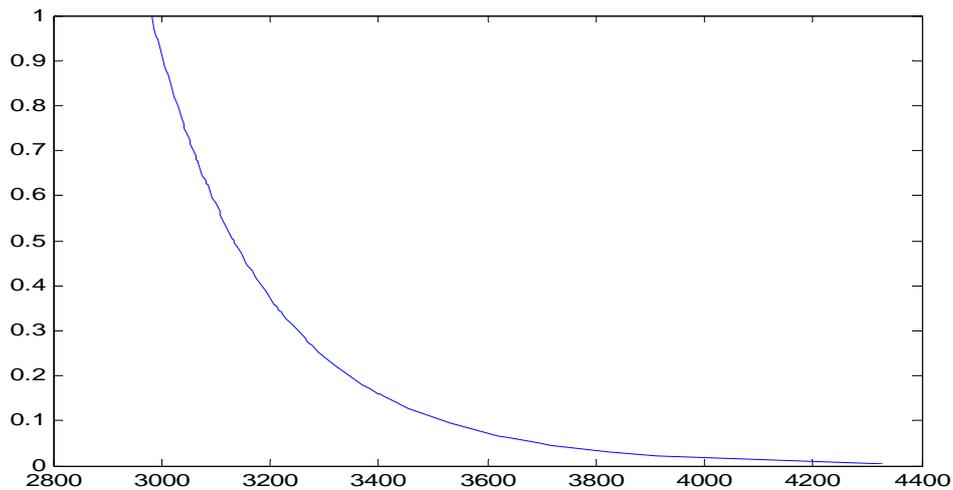


Figure 7 Density Function for the Posterior Predictive Tail Probabilities

5.3 Predicting Future Observations Using the Generalized Pareto Distribution: A Comparative Analysis

The generalized Pareto distribution (GPD) is a peak over threshold (POT) distribution which is used to model data above a sufficiently high threshold. The GPD has two parameters ξ and σ which are the shape and scale parameters respectively. The survival function of the GPD is given in equation (8).

$$P(X > x|\tau) = \begin{cases} \left(1 + \frac{\xi(x-\tau)}{\sigma}\right)^{-\frac{1}{\xi}}, & \text{if } \xi > 0, x - \tau > 0 \\ \exp\left(-\frac{x-\tau}{\sigma}\right), & \text{if } \xi = 0, x - \tau > 0 \\ \left(1 + \frac{\xi(x-\tau)}{\sigma}\right)^{-\frac{1}{\xi}}, & \text{if } \xi < 0, 0 < x - \tau < -\frac{\sigma}{\xi} \end{cases} \quad (8)$$

The R statistical package is used for obtaining the maximum likelihood estimates. The estimates are given as:

$$\sigma = 1286.4978 (91.7993), \xi = -0.3467 (0.0486)$$

with the standard errors in parentheses. These results show that the data can be modelled using a Weibull class, ($\xi < 0$).

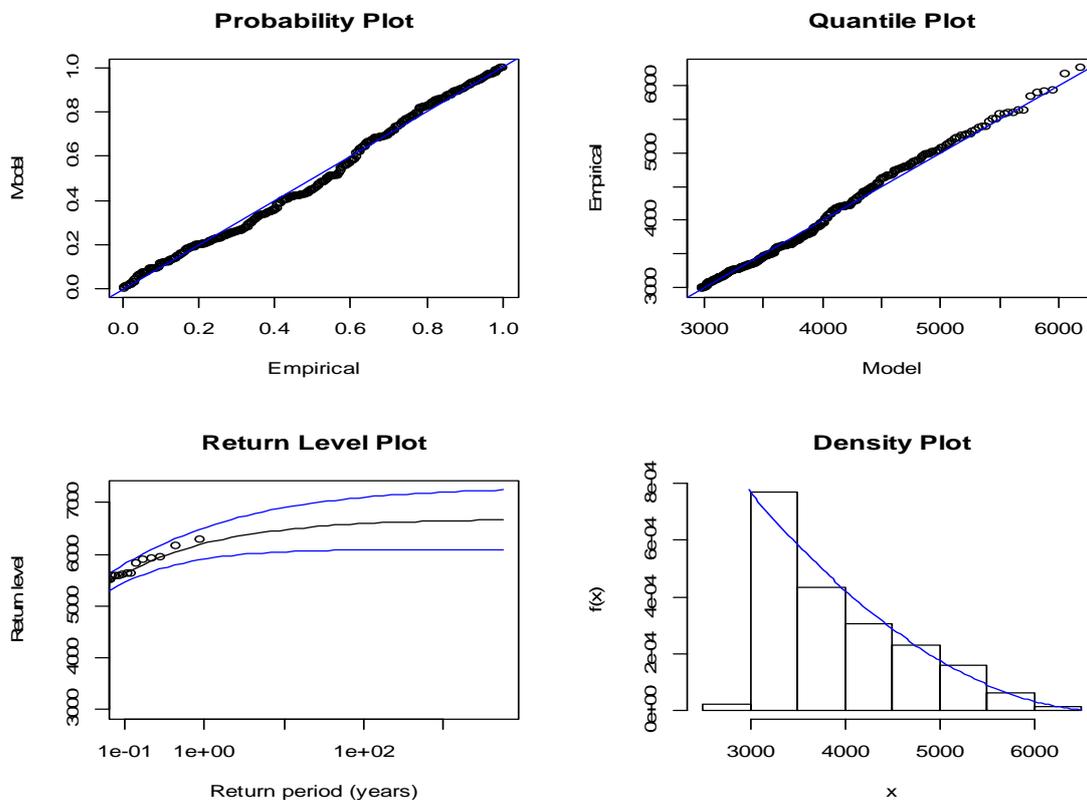


Figure 8 Diagnostic Plots Illustrating the Fit of the Data

The QQ and probability-probability (PP) plots given in Figure 8 shows that a Weibull distribution is a good fit to the data. The return level estimates are inside the 95% confidence interval. This is an indication that the fitted model (distribution) is capable of accurately predicting future return levels.

The tail probabilities are then estimated by equation (10) after rearranging the quantile function in equation (9).

$$x_{n+1} = \tau + \frac{\sigma}{\xi} (p^{-\xi} - 1), \xi \neq 0 \quad (9)$$

$$p = \left(\frac{\sigma + \xi(x_{n+1} - \tau)}{\sigma} \right)^{-\frac{1}{\xi}} \tag{10}$$

Some of the predicted tail probabilities for various future daily peak electricity demand using equation (10) are given in Table 2.

Table 2 Probabilities

x_{n+1}	$P(X > x_{n+1} X > \tau)$ GPD
3000	0.9853
3500	0.6475
4000	0.3961
4500	0.2189

The results from the GPD are better than those from fitting a GP-type distribution as shown by the QQ plots of Figures 5 and 8 respectively. The QQ plot of Figure 8 incorporates most extreme observations in the tail slightly better than the QQ plot of Figure 5. The GP-type distribution is however an attractive distribution to work with since it has one parameter instead of the two associated with the GPD.

5.4 Frequency Analysis of Exceedances

Table 3 summarizes the frequency of exceedances over the sampling period 2000 to 2009. The highest frequency of 144 observations is in July. This indicates that it is the coldest month during the winter period. Modelling of winter peak electricity demand improves the reliability of a power network if an accurate assessment of the level and frequency of future extreme winter peak load forecasts is carried out.

Table 3 Frequency of Exceedances by Month

Month	May	June	July	August
Frequency	40	115	144	23

The histogram of the frequency of occurrence of exceedances is given in Figure 9.

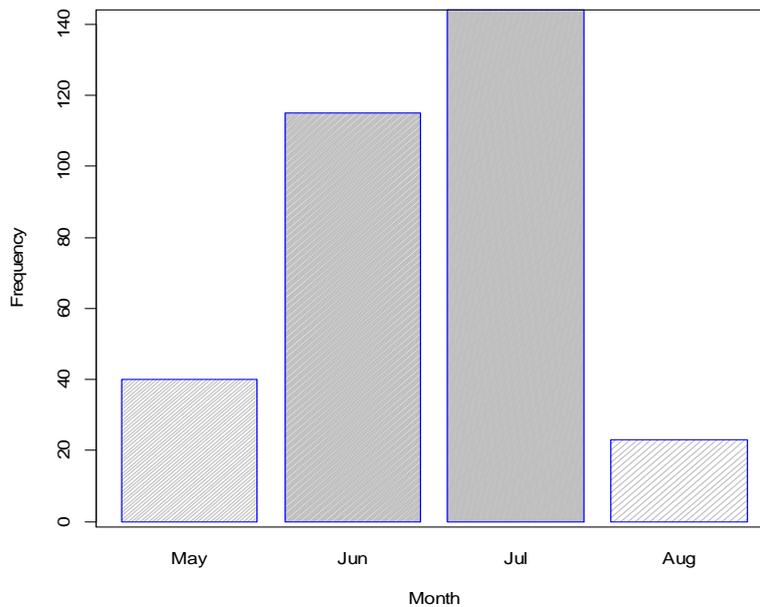


Figure 9 Bar Chart of the Frequency of Occurrence of Exceedances

The daily peak electricity demand above the threshold ($\tau = 2981$ corresponding to 28288 megawatts) given in Figure 10 exhibits a positive upward trend with random fluctuations.

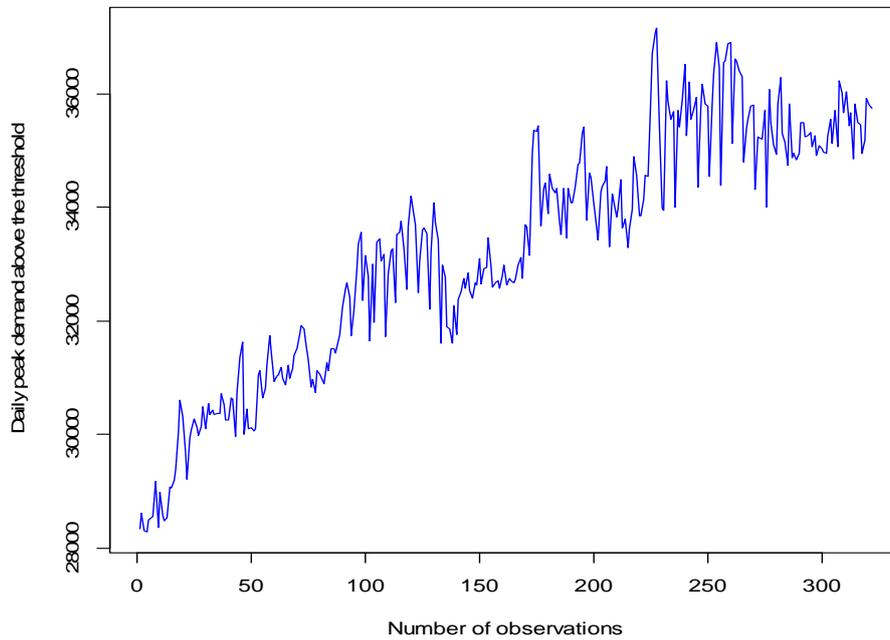


Figure 10 Peak Electricity Demand Above the Threshold ($\tau = 2981$ Corresponding to 28288 Megawatts)

Figure 11 shows high volatility in the daily changes in the exceedances over the sampling period (2000 to 2009) and also exhibits volatility clustering. This increases uncertainty in future winter peak electricity demand forecasting. An accurate analysis of the winter peak exceedances helps in improving the reliability of a power network.

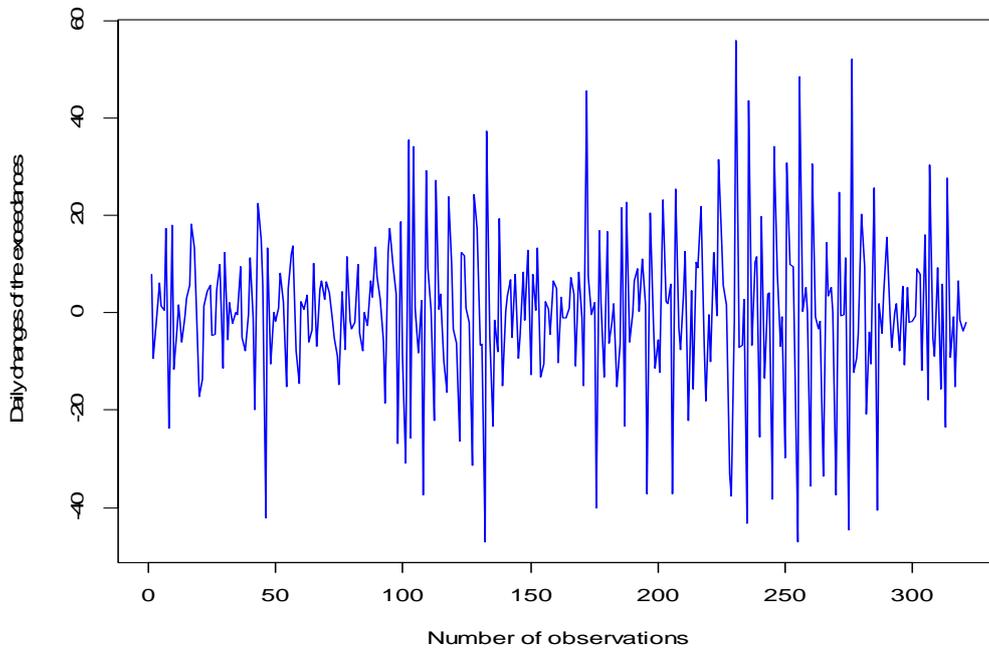


Figure 11 Plot Of Daily Changes In The Exceedances (2000 to 2009)

6. Conclusion

An application of a Generalized Pareto-type (GP-type) distribution to modelling of extreme daily peak electricity demand during the winter period in South Africa is discussed in this paper. The GP-type distribution seems appropriate in modelling of extreme daily peak electricity demand. The main advantage of this modelling approach is that the GP-type distribution has only one parameter to estimate, given that the threshold is known. A comparative analysis is done by fitting a GPD. Empirical results show that the Weibull class of distributions can be used to model the daily peak electricity demand data. The results from fitting a GPD are however better than those from fitting a GP-type distribution. Modelling the tail of a distribution in load forecasting helps to understand how extremes may affect forecasts. This helps decision makers in the electricity sector in utility planning and reduces operational costs.

Areas for future research would include use of other methods for determining the threshold and use of the maximum likelihood method in estimating the tail index of the GP-type distribution. These areas will be studied elsewhere.

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